
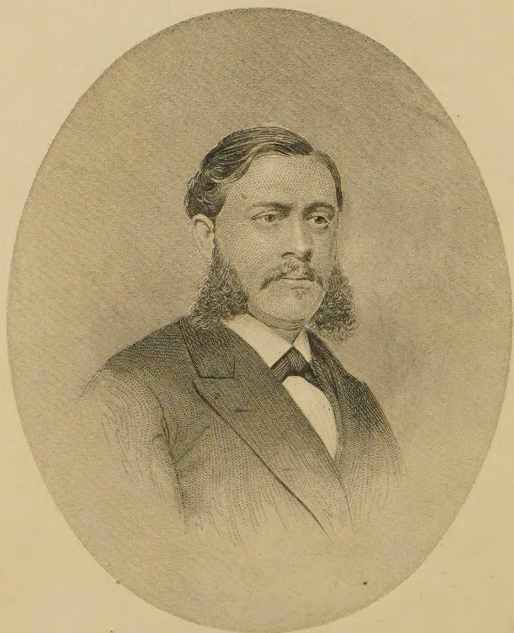


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Yours cordially/
Geo. W. Naphys M.D.



HANDBOOK

OF

POPULAR MEDICINE,

EMBRACING

THE ANATOMY AND PHYSIOLOGY OF THE HUMAN BODY; ILLUSTRATIONS OF HOME GYMNASTICS; INSTRUCTIONS FOR NURSING THE SICK; THE DOMESTIC TREATMENT OF THE ORDINARY DISEASES AND ACCIDENTS OF CHILDREN AND ADULTS; PLAN FOR A FAMILY HEALTH RECORD, ETC.

WITH

OVER 300 CHOICE DIETETIC AND REMEDIAL RECIPES, AND MORE THAN 100 ENGRAVINGS ON WOOD.

ESPECIALLY ADAPTED

FOR GENERAL AND FAMILY INSTRUCTION AND REFERENCE.

BY GEORGE H. NAPHEYS, A.M., M.D., ETC.

Revised to the Latest Date.

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BIOGRAPHICAL SKETCH

OF

GEORGE HENRY NAPHEYS, M.D.

Were man's life measured by his deeds, as the poet suggests, how brief would be the long years of many an octogenarian, and how extended the short span which has been allotted to not a few of the world's famous heroes !

This oft-repeated thought strikes us forcibly in considering the biography of the subject of this sketch. Closing his life at an age when most professional men are but beginning theirs, he had already studied broadly, had traveled widely over two continents, had gained credit and fame by the sword and the pen, and had amassed a fund of erudition and experience which the more lethargic lives of most men fail to approach after twice his length of days. It is eminently appropriate that a record of his busy career should be attached to the works on which his celebrity is chiefly based, and in which he most conspicuously displays that

command of language and happy facility of imparting instruction for which he was so remarkable.

GEORGE HENRY NAPHEYS (pronounced Nā'feeze, the ā as in *fate*) was born in the city of Philadelphia, March 5th, 1842. His parents died while he was still at a tender age, and he was placed with some relatives who resided in the city. From early years he was characterized by quick perceptions and a retentive memory. In the Philadelphia High School, from which he received the academic degree of Master of Arts, he was considered the best scholar in his class, a marked distinction in view of the large numbers which attend that institution. Besides acquiring the usual studies of the High School, he gave considerable time to phonography, in which he became so skilled that he could report any ordinary speaker with entire accuracy. This subsequently proved a great advantage to him in his medical career.

After his graduation he repaired to Hartford, Conn., where he was offered and accepted the position of private secretary to a gentleman of prominence in the literary and religious world.

Thus he was engaged when the civil war broke out. With his natural warmth of feeling and strong emotions, he entered the fray among the first, and went out as Lieutenant, and subsequently as Captain, Company F, 10th Connecticut State Volunteers. The regiment was enlisted for nine months, and was dispatched to Louisiana, General

Banks then commanding the Department. It participated in engagements near Baton Rouge and on the Red River, in which Captain Napheys always acquitted himself with bravery and credit.

At the time the regiment was disbanded, an early preference for medical subjects led him to devote a year to the preliminary studies of that profession, but not waiting the full period required for a degree, he was appointed assistant medical officer on the U. S. steamer Mingo, of the South Atlantic Blockading Squadron. On her he passed a number of months, cruising off the coast of the Carolinas and Georgia, and ascended the St. John river.

These active duties prevented him from receiving his degree of Doctor of Medicine until after the close of the war, when, in 1866, his diploma was conferred upon him by the Jefferson Medical College of Philadelphia, one of the most renowned institutions of our country.

After graduation, he opened an office in Philadelphia, and connected himself with the clinics which are held at the College for the purpose of supplying medicine and medical advice to the poor gratuitously, as well as for giving students an opportunity of witnessing various forms of disease. The practical experience he gained in this manner was considerable, and his natural ability soon recommended him to the authorities of the institution, who appointed him Chief of Medical Clinic of the College, a position he held for several years.

One of the advantages of this post was that it brought him into constant communion with many eminent medical men, and rendered him practically acquainted with their treatment of disease. His skill in phonography enabled him to take abundant notes of their lectures, and this led to his early connection with the periodical literature of the profession. Most of the reports he drew up were published in the *Medical and Surgical Reporter*, a weekly journal, devoted to medical science, published in Philadelphia. The series of reports commenced in April, 1866, and continued, with slight interruptions, until June, 1870. They are characterized by a clear and correct style, and a manifestly thorough grasp of the numerous topics treated.

The success which these ephemeral writings obtained turned his thoughts in the direction of authorship. His tastes and associations led him to employ his powers in two directions: first, in preparing for the general public a series of works which would acquaint them with anatomy, physiology, hygiene, sanitary science, nursing, and the management of disease, to the extent that intelligent general readers can and ought to know about these subjects; and secondly, in writing for professional men several treatises on the means of alleviating and curing diseases.

In the prosecution of the first mentioned of these plans, he was early impressed with the utter absence of any treatise on the hygiene of the sexual life in either sex, written in the proper spirit by a scientific man. The field had been

left to quacks or worse, who, to serve their own base ends, scattered inflammatory and often indecent pamphlets over the land ; or else, had one or more of the points been handled by reputable writers, it was in such a vague and imperfect manner that the reader gained little benefit from the perusal. While all agreed that a sound treatise on these topics was most desirable, it had been openly averred that it could not be written in a proper style for the general public.

Strong in the conviction that pure motives, literary tact, and the requisite scientific knowledge qualified him to undertake this difficult task, Dr. Napheys prepared, in the early months of 1869, his work on "The Physical Life of Woman." Proceeding with caution, he first submitted the MSS. to some professional friends, and profited by their suggestions. After the work was in type, and before publication, he sent complete copies to a number of gentlemen, eminent as medical teachers, clergymen, educators, and literateurs. Their replies left him in no doubt but that he had succeeded even beyond his anticipations. Almost unanimously the opinions were complimentary in the highest degree, and evidently written after a close examination of the book. As many of these have been printed to accompany the work, in the last and previous editions, it is needless to do more in this connection than to say that they were penned by such judges as Dr. W. A. Hammond, late Surgeon-General U. S. Army ; Dr. Harvey L. Byrd, Professor in the Medical Department of Washington University, Md. ;

Dr. Edwin M. Snow, Health Officer of the City of Providence, R. I.; Rev. Henry Ward Beecher, Rev. Horace Bushnell, D.D., Rev. George A. Crooke, D.D., D.C.L., and others.

On its appearance, the work was received with enthusiasm by both the medical press and the public. While a few journals and individuals were inclined to condemn it and censure the author, the intelligent and the pure-minded, on all sides, recognized in him the only writer who had yet appeared able to treat these delicate subjects with the dignity of science and the straightforwardness necessary for popular instruction.

Satisfied that he had chosen the proper exercise for his talents, he composed and placed in the hands of his publisher, the following year, his not less extraordinary work, "The Transmission of Life," a treatise addressed to the male, as his previous one had been to the female sex. It was dedicated to the late Rev. John Todd, so well known for his interest in young men, and his "Student's Manual" and other works addressed to them. He accepted the dedication and addressed the author a letter, in which occurs the following high compliment to his work: "I am surprised at the extent and accuracy of your reading; the judiciousness of your positions and results; the clear, unequivocal, yet delicate and appropriate language used; and the amount of valuable information conveyed." Similar expressions poured in from many other distinguished critics, as, for in-

stance, Dr. Noah Porter, President of Yale College; the Rev. Henry Clay Trumbull, the Rev. Abner Jackson, President of Trinity College, Hartford, etc.

In the same year (1870) he brought out the first edition of his "Modern Therapeutics," a technical work, addressed to physicians. This was enlarged in successive editions, until in its present form, as continued by other hands in its latest editions, it comprises two parts of 600 pages each. Although the author claimed little other originality in this work than the selection and arrangement of known facts, yet in these respects he displayed the strongly practical and original turn of his mind. As a student of the art of Therapeutics in large hospitals, clinics, and dispensaries, he had convinced himself that it is not by experiments on lower animals, nor yet on the human body in health, that the physician can attain the glorious power of alleviating pain and curing disease; it is only through the daily combat with sickness, by the bedside and in the consulting room. Chemistry and physiology, he believed, could teach but little in this branch; observation and experience everything. Hence, in his work on Therapeutics he announced himself as "aiming at a systematic analysis of all current and approved means of combating disease," selecting his formulæ and therapeutical directions from the most eminent living physicians of all nations.

This work was most favorably received by medical men; and, edited and revised by competent hands, continues to be

regarded as one of the most valuable works in American medical literature. The unanimous opinion of the leading medical journals, as well as of its numerous purchasers, have testified to its real and great worth to the practitioner of medicine.

Having thus established a wide, popular and professional reputation, one which would have guaranteed him a lucrative practice, it would have tempted another, no doubt, to make the most of this opportunity, so rarely granted a young physician. Not so was it with Dr. Napheys. No sooner had the three works mentioned been completed than he sailed for Europe, in order to familiarize himself with the famed schools of learning of the Old World and its rich stores of material for culture. The summer was that of the Franco-German war; and spending most of it in Paris, he was witness of several of the most exciting scenes which attended the dethronement of the Emperor. These he would describe afterwards with a vividness and power of language rarely excelled.

The excitement of the period did not, however, withdraw his attention from the studies he had in view. These were partially indicated in a series of letters he contributed to various periodicals during his absence. While these letters were principally of a scientific character, it is noteworthy how the relations of medicine to the welfare of man always occupied his attention. Thus we find, in one sent from England, June, 1870, a description of the Liverpool Medi-

cal Missionary Society, a charity which combines religious instruction with medical advice; and again, he comments on the popular instruction in hygiene which was supplied at that period to the English workingmen by a committee of competent physicians, organized for that purpose. It was the author's purpose to collect and expand these letters into a volume, but the project was not carried out.

The siege of Paris, which city he left in one of the last trains before the blockade commenced, and the prolongation of the war, induced him to return home. In the United States he found offers from several publishers awaiting him, which would more than occupy him for a full year. There was a new edition of his "Therapeutics" demanded, and a revision of both "The Physical Life of Woman" and "The Transmission of Life." A New England firm urgently pressed him to superintend the production of several hygienic works, and secured him as literary adviser to their house. He assumed the editorship of the "Half-Yearly Compendium of Medical Science," and also of a "Physician's Annual," besides undertaking a number of articles for the periodical press, both scientific and popular.

To this active literary life he devoted the year 1871; but at its close felt more strongly than ever that he must give himself several years of studious quiet, in order to accomplish his best. Refusing, therefore, any further engagements, he sailed for Europe again, late in 1871, and did not return this time until the spring of 1875. In this

period, of more than three years, he visited almost all the principal cities of Europe, and enjoyed the friendship of many eminent men at London, St. Petersburg, Vienna, and Paris. Reading, visiting hospitals, and attending clinics, he accumulated a mass of material which he designed to work up into future literary enterprises.

With these collected stores he returned to the United States early in 1875, and set to work with his wonted energy. A new and much enlarged edition of the "Therapeutics" was sent to press; a "Handbook of Popular Medicine," designed to give, in simple language, the domestic treatment of disease, the rules for nursing the sick, selected receipts for diet and medicinal purposes, and the outlines of anatomy and physiology, was put in the hands of a publisher; a Synopsis of Pharmacy and Materia Medica, a work of enormous labor, was well under way; and other literary projects were actively planned; when, suddenly, the summons came which, in an instant, with the shears of fate, slit the strand of this activity. The rest of the story may be told in the words of the biographer appointed by the Medical Society of the County of Philadelphia to prepare a memoir of his life:—

"While earnestly laboring to prepare for the press his literary collections, he suffered a severe blow by the sudden death of a person to whom he was deeply attached. Overwork and this emotional shock produced a result likely enough to occur in one of his ardent temperament. One

afternoon, while engaged in writing, he fell, unconscious, from his chair, and for several days lay in a very critical condition. On recovering his powers, it was evident his brain had suffered a serious lesion. The old energy and love of labor had completely gone; even the capacity for work seemed absent. Marked melancholy followed, characterized before long by avoidance of friends and the loss of a desire of life. This occurred with increasing force until it led to his death, on July 1, 1876, through some toxic agent, the nature of which was not ascertained.

“Thus early, and thus sadly, terminated a career of unusual brilliancy and promise.

“It is probable that much that he has written will be read with pleasure and instruction by future generations; and the memory of his genial disposition, his entertaining conversation, and earnest sense of professional honor, will long be cherished by those of his contemporaries who enjoyed his friendship.”—*Transactions of the Medical Society of the State of Pennsylvania*, vol. xi, p. 720.

Various tributes were paid to his memory by the societies with which he was connected, and by the scientific journals to which he had been a contributor. One of these, after narrating some of the circumstances attending his decease, spoke as follows:—

“Thus did our unfortunate associate close his short but brilliant career. The emotions, the tender sentiments he has described with such a magical pen, he felt himself with

an unmatched keenness. They mastered his whole frame with an intensity surpassing all romance. His descriptions of the passions, descriptions which have been the wonder of thousands, such is their fire and temper, were not rhetorical studies, but the ebullition of a soul sensitive to their lightest breath, and not shunning their wildest tempests.

“The genius which dictated the lines he has left us is not to be judged by the conventionalities which suit the cold temperaments of ordinary men; there is a strong vein of egotism in most devotion; but here was one who felt, ‘all is lost, when love is lost.’”

This extract well sets forth the extraordinary depth of his sentiments, and the fervor of his feelings. It may be added that these mental traits were not generally ascribed to him by casual or ordinary associates. He was, in manners and bearing, evidently not one who sought friendships or displayed to the general gaze the current of his thoughts. Consequently, of intimates he had but few, and was considered by those whose intercourse with him was superficial, to be much more of an intellectual than of an emotional type of character.

This impression was doubtless increased by the strongly practical turn of his mind, which is conspicuous in all his works. He was the reverse of a dreamer and had little patience with theorists. In his professional study he always aimed at bringing into the strongest light the utilitarian aspect of medicine, its ameliorating power on humanity, its

real efficacy in preserving or restoring health and limiting human misery. On this his theory of therapeutics was based, and, inspired by the same opinions, he was one of the most earnest advocates of the day of popularizing medical science in all its branches among the masses. In this effort he was at times severely criticised by that class of physicians—and they are by no means extinct—who think that medicine should be wrapped in mystery, and that the people should be kept in ignorance of themselves and of their own physical frailties, to the utmost possible extent. With these learned obscurantists Dr. Napheys had no patience, and naturally found but slight favor. Fortunately, they were in the decided minority, and, we are happy to add, even that minority is daily decreasing.

Of the various learned societies to which he was attached may be mentioned the Philadelphia County Medical Society, the Franklin Institute of Philadelphia, and the Gynecological Society of Boston. His election as Corresponding Member to the latter body (which is an association of scientific men who make an especial study of the hygiene and diseases of women) took place shortly after the first publication of the *Physical Life of Woman*, and was meant as a direct tribute of respect to him as the author of that work, thus obtaining for it the testimony of the highest body in that specialty then existing in our land.

The general plan on which Dr. Napheys prepared his sanitary writings was one eminently calculated to reconcile

those who were most opposed to instructing the general public in such branches. While he confidently believed that vastly more harm than good is done by a prudish concealment of the physiology of sex and its relations to health, he also clearly recognized that such instruction should be imparted at the proper age and under certain limitations; while the general facts common to the species cannot be taught too generally, or made too familiar. Hence, he projected three books, one to be placed in the hands of young women, a second for youths, and a third for a general household book of reading and reference on medicine and hygiene. These three he completed in "The Physical Life of Woman," "The Transmission of Life," and the "Handbook of Popular Medicine."

This plan, he believed, met all the objections to popular medical instruction, at least all well-grounded objections, while at the same time it did away with any necessity for concealing truths important to be known, for fear they should come to the knowledge of those for whom they were not designed, and on whose minds they might have a disturbing tendency.

There can be no doubt but that both the plan and its execution were successful. The many letters he received, filled with thanks from private parties who had gained inestimable knowledge from these works, made rich compensation for the occasional severe strictures he received from

those wedded to ancient ways, and who often condemned without even reading his works.

The intelligent reading public, on whom, after all, the writer must depend for a verdict on his works, were unanimous in his favor. They bought them in quantities, and the writer of his life in the *Transactions of the Pennsylvania State Medical Society*, above quoted, who wrote in 1877, estimates that by that time over *a quarter of a million* copies had been printed and sold. Translations were made into the German, and several editions pirated and printed in Canada and England. In fact, the works may now be considered to rank as classics in the language, and many years must go by before another such series can be written, on topics of this nature, with equal delicacy of touch and accuracy of knowledge.

PUBLISHERS' PREFACE.

IN completing the excellent works of Dr. George H. Napheys on popular medical science, by the present volume, the publishers believe that they present to the public a series of volumes unsurpassed in the literature of this department of study. The completeness of the present work, its practical character, its careful arrangement, and its fullness of illustration, make it unique of its kind. Of its high scientific and literary merit it is needless to speak ; for its plan and arrangement the reader is referred to the Introduction.

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INTRODUCTION.

Science has no secrets. Whatever it wins, it is ready to apply to the benefit of all, not retain for the profit of a guild or a profession. Its stores are bountifully open, and ignorance alone is barred from their use. To lessen this, to bring knowledge to the reach of all, to make every one acquainted with every fact he can profitably use—this is the high calling of the teacher.

What is thus true of science generally, is especially so of medical science. The health, the happiness, the life of man, are here concerned. What, his religious hopes excepted, has a more direct claim on his time, his mind, his money? Yet the ignorance of the simple facts of anatomy, and of the proper action in time of accidents, is appalling. Too many of those who have set out to diminish it have failed through the use of pedantic terms, through the use of big words, and the writing of big books.

The present volume is an endeavor to condense, in brief yet simple language, those remedial measures, those resources in emergencies which all should know, as well as the knowledge of the human body, which makes this information clear and available. It aims to do more than this, namely: to supply a volume of such a size that a traveler can have it always by him, containing instructions by which all the ordinary diseases of childhood, youth, and adult life can be properly treated by

any intelligent person. Not that it is intended to take the place of a physician ; but where one who is reliable cannot be obtained, this work will prove a respectable substitute. Based on several of the most recent and able authorities, its recommendations will be found practical, and to the purpose.

In one point, it will be found different from most, if not all other popular treatises on the subject, that is, the diseases peculiar to the sexes are *omitted*. The reasons for this were several. In the first place, by this omission, the present is a volume which need never be put under lock and key, but can and should always be kept on the family reading-table, where it can be consulted at any moment, and read whenever there is leisure for it; again, those diseases are so obscure that they cannot be sufficiently discussed in so brief a volume as this; and lastly, they have been handled in full in the works, "The Physical Life of Woman" and "The Transmission of Life," both by the editor of this work; the former treating of the diseases incident to the female, the latter, of those peculiar to the male sex. These works, published by the same house who publish the present book, are supplementary to it, and with it form a complete body of popular and practical Domestic Medicine.

Great care has been taken that the *arrangement* of the present work should be clear, simple, and easy of reference. The diseases are classified: first, as those of adults and those of children; secondly, under each of these heads, those ailments are first mentioned which affect the whole of the body, and next those which affect its several parts; again, under the first of these headings, that is, the diseases affecting the whole of the body, they are classified according to the most prominent *symptom* they display. By impressing on the mind this

scheme, the reader will find no difficulty in identifying an ailment which he may be called upon to treat.

The *medicines* recommended have been carefully selected from the vast number which now fill the drug lists. Simplicity, cheapness and efficiency have been the guides here. A half dozen or so really excellent drugs are about all used by enlightened physicians in nine-tenths of their cases; and the longer a physician practices, the fewer remedies he usually comes to employ. The *receipts* for a considerable number are given in Part IV, and referred to in the course of the work. In addition to them, *prescriptions* are added occasionally in the body of the book and several well-known preparations recommended.

The pages of this volume which are devoted to the Family Health Record merit the attention of every mother. By expending the slight labor necessary to fill them up, she will often render the physician more positive in his knowledge of her childrens' constitutions, and more certain, therefore, in his treatment, than by any amount of vague conversation.



PART I.

STRUCTURE AND ACTION OF THE BODY.

THE DIVISIONS OF THIS PART.

The body consists of a framework, and of instruments or “organs” within it. This framework is made up of the bones or “skeleton,” covered by soft parts, and has its pieces so joined together as to enable us to move. These organs are instruments for performing the various acts essential to life.

We, therefore, invite the reader first to the study of *the framework of the body and its movements*, and then to that of *the instruments of the body and their offices*, aiming to draw therefrom not merely dry facts and figures, for mental satisfaction, but practical lessons in health, for physical good. Fortified by the knowledge thus acquired, of the structure and action of the body, we can pass to the consideration of its more usual ailments, and of the manner in which they may be treated and avoided.

“ Not in the world of light alone,
Where God has built His blazing throne,
Nor yet alone on earth below,
With belted seas that come and go,
And endless isles of sunlit green,
Is all thy Maker’s glory seen—
Look in upon thy wondrous frame,
Eternal wisdom still the same!”



CHAPTER I.

THE FRAMEWORK OF THE BODY, AND ITS MOVEMENTS.

SECTION I.—THE EXTERNAL COVERINGS OF THE BODY.—*The Skin*—Its structure and uses—How it regulates the heat of the body—How it drains off waste products—Its coloring matter—Hygienic hints on the care of the skin—Clothing—Dwellings—*The Hair*—*The Nails*.

SECTION II.—THE FLESH AND MUSCLES.—The structure of a muscle—Home gymnastic exercises without apparatus—Other forms of exercise.

SECTION III.—THE BONES AND JOINTS.—The structure of bones—The four different classes of bones—The bones of the head—The bones of the trunk—The bones of the limbs—*The different kinds of joints*—Deformities of the bones; how avoided and remedied—*The Teeth*—Directions for their preservation.

The skin, which, with its outgrowths, the hair and the nails, makes up the external covering of the body, envelops the flesh and muscles, which, in turn, clothe the bones. Starting with the design of proceeding in our study from the best known to the least known, from the seen to the unseen, we shall first turn our attention to the external coverings, and then direct our course to the inner and deeper mysteries of that wonderful structure we call “the body.”

I. THE EXTERNAL COVERINGS OF THE BODY.

The body is covered by the skin and its outgrowths, the hair and nails. The skin is a membrane of greater or less density, enveloping the entire surface of the body. It serves the purpose of protecting the parts lying beneath, of regulating the animal heat, of affording an outlet for waste and used-up matters, and of establishing sensitive relations between the living frame and surrounding objects. It is the principal seat of the sense of touch. The tissue

of the skin is compact, but pierced by numerous passages. It consists of two layers, the scarf skin and the true skin, the latter of which, when prepared by the chemical process of tanning, constitutes leather. Figure 1 shows the side, greatly magnified, of a cut made through the skin. Nos. 1, 2 and 3 are the scarf skin; 8, the true skin; 4, the coloring matter of the skin; 6, nipple-like eminences, by which we have the sense of touch; 7, sweat glands, with ducts or tubes, 9, passing through the true skin and the scarf skin, to the pores on the surface, 11, to throw out perspiration.

The skin is the great *heat regulator* of the body. This it accomplishes by increasing the sweat when the body is too hot, and by lessening it when it is cool. But it will be asked, how does this increase of sweat reduce the animal heat? Very simply. All fluids as well as solids possess two forms of heat: one of which is not perceptible to the touch or thermometer, and therefore termed latent or hidden; while the other can be detected by the touch and measured by the thermometer. But a gas or vapor has many (almost seven hundred) times as much latent or hidden heat as a fluid, hence, when the water of the perspiration is poured out upon the skin and becomes vapor, it absorbs heat from the skin and blood, and so cools us off.



Section of Skin.

When we are quiet the skin has little moisture upon it, but when we exert ourselves violently the water trickles from the surface, and by its evaporation, rids us of unnecessary heat. We are thus enabled, also, to resist unnaturally high temperatures, as well as very low ones. So long as the air be dry very great heat can be borne. In some trades workmen enter furnaces the air of which has a temperature of a hundred and fifty degrees *above* that which boils water. Under these circumstances the sweat glands are stimulated to extraordinary activity, and pour out a large quantity of water upon the skin, which quickly evaporates, and so cools down the body

to the natural temperature. If, however, the air be moist instead of dry, and if sweating be in any way interfered with, the body soon becomes unnaturally warm, and death results if the exposure be long continued.

The process of perspiration goes on without our aid or will, but is effected by variations in the temperature, by exercise, by various nervous conditions, such as anxiety, excitement, irritation or lassitude, and may be controlled, to a great extent, by the amount of clothing we wear, or of the fuel we put in our stoves. The total number of sweat pores reaches the enormous sum of seven millions, and the total length of the sweat tubes of the body is nearly twenty-eight miles.

This vast array of tubes and pores not only serves to regulate the temperature of the body, as we have just explained, but also to give an outlet to the products of the waste of the system, and thus aid the kidneys, which are apt to become disordered when anything interferes with the free action of the skin. Some animals, as frogs and salamanders, *breathe* largely through the skin as well as the lungs. In these animals the skin is very moist, flexible, and copiously supplied with blood vessels. While the animals are beneath the surface of the water, and therefore unable to breathe by the lungs, respiration takes place through the skin. We also breathe by the skin, but to a much more limited extent. This enables us to understand the desirableness of keeping the skin moist in fevers, in which there is great heat and dryness of the surface, since the breathing process cannot go on through a dry membrane. Cold and tepid sponging affords, therefore, in these cases, much relief. The myriads of sweat glands and pores, and the miles of sweat ducts, also teach us the importance of proper exercise to stimulate them into action, and of personal cleanliness to remove the matter thrown out. Many diseases are consequent upon inactive habits of life and want of ablution.

The color of the skin is determined by the tint of the layer of coloring matter found between the scarf skin and the true skin, as shown by No. 4, in Figure 1. Here we have the seat of the varied hues which characterize the different races of men, as, for example, the fair and ruddy Saxon, the jet-black Negro, the olive Mongolian,

and the copper-colored Indian. Redness of the cheeks is almost wholly confined to the white races. "It is only," writes Humboldt, "in white men, that the instantaneous penetration of the skin by the blood can take place, that slight change of color which adds so powerful an expression to the emotion of the soul. 'How can those be trusted, who know not how to blush?' says the European, in his inveterate hatred to the negro and the Indian." Still, in some very light examples of the brown and yellow races, blushing has been observed. Climate has a great influence over the complexion. The fairer races live remote from the tropics. People inhabiting high mountains and countries of great elevation, are generally of a lighter color than those living upon a lower level, such as swampy or sandy plains at the seaside. Albinos, or those whose skin is of an unnaturally white tint, are found among the colored as well as in the white races, so that there are white negroes and white red men. There are several authentic cases upon record of *change of color* in the negro, the change being so complete that, at least in one instance, that of a negro who was perfectly black until the age of twelve, "but for his hair, which was crisped or woolly, no one would have supposed that his progenitors had offered any of the characteristics of the negro, his skin presenting the healthy vascular appearance of that of a fair-complexioned European." The artificial colors imparted to the skin by tattooing, so frequently seen among sailors, and of which such curious and often very elegant examples are found among the South Sea Islanders, are indelible, residing as they do in the true skin, and can only be removed by the destruction of the part. They may, however, be concealed, for a time at least, by pricking in over the marks a fine rouge of the exact color of the skin, repeating the operation when necessary.

Hairs are found upon almost every portion of the surface of the body, except the palms of the hands and the soles of the feet. A hair is composed of a bulb or *root*, which is the part imbedded in the skin; of a *shaft*, which is the free portion; and of a *point*. In figure 2, there is shown the inside of a hair, by which it will be seen to be a delicate tube. The minute canal there pictured is filled with air. The walls of the hair tube are double, the outer coat consisting of

flat scales, the inner coat of cells which contain the coloring matter. The surface of each hair is therefore covered by minute scales, like

Fig. 2.



Inside of a hair.

those of a fish. They overlap each other from root to point, which is the reason that a hair, when drawn through the fingers from the root to the point, feels smooth, but rough when drawn from point to root. The number of the hairs on a healthy head have been calculated to be over a hundred thousand. The hair of the head grows at the rate of about eight or ten inches a year. The influence of the mind upon the color and growth of the hair of the head is well known, fear, anxiety, and dismal emotions weakening it and turning it gray. Usually, the change in color is gradual, but authentic instances are on record of the hair turning gray in a single night

“A tedious night indeed, that makes a young man old.”

The subject of hair washes and tonics will occupy us in their proper place, in accordance with the plan of the book, and can be found by reference to the index.

The Nails are situated, as we all know, upon the backs of the ends of the fingers and toes. Each nail consists of a *root*, the part imbedded in a groove of the skin; of a *body*, and of a *free edge*.

We are much less protected than animals, by natural coverings, against the vicissitudes of weather, and the rigors of inhospitable climates. They are furnished with hair, fur, or feathers, of such a quantity and color as to enable them to bear different temperatures and climates. We are endowed with reasoning powers which teach us how to clothe and house ourselves, in order to guard against the various degrees of heat and cold we encounter. A few words upon the *hygiene of clothing* and *dwellings* may here be in place.

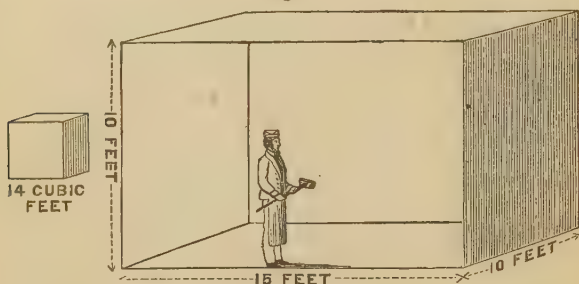
Clothing. For the under-clothing, woollen is preferable all the year round, from infancy to old age—heavy flannels for the winter, light merinoes for the summer. Muslin next the skin is warmer than linen, which should never be so worn, as it tends to give cold by the sensation of cold it imparts after the body has been heated and

thrown into a perspiration. For the outer-clothing, a cloak, overcoat or shawl, which should also be of wool, is necessary to be worn or thrown aside, according to the weather and the feelings. For the intermediate clothing, the quality and quantity are determined by the manner of living, the occupation, and the season of the year. Wool is best for cold weather; cotton goods and silk may be worn at other times by women, and linen, perhaps, by men. We see, therefore, that woollen fabrics make the best article of clothing, for outdoor and indoor wear, and for all seasons. The clothing at night should also be of wool, as heavy cotton counterpanes weigh the body down and cause great fatigue. The coverings of the bed, therefore, except the sheets, should all be blankets. The number of blankets used must vary with the state of the health, the sick and feeble requiring greater warmth at night than the well; with the age, old people and children needing more night clothing than those in middle life; and, naturally, with the weather and season. When a *woolen night dress* is worn, which is preferable to a muslin one in cold weather, and particularly for the very young and aged, and those subject to rheumatism, fewer blankets will be required. Persons with cold feet are usually more comfortable with woollen stockings. Two light stockings are warmer than a single heavy one. Great care should be taken to keep the hands and feet of aged persons warm. Inattention to the clothing of very old people and infants, who are alike sensitive to cold, is a frequent cause of death in winter.

A dwelling should be in a healthful locality, dry, light, well ventilated and roomy. Its site should be dry and high. The soil should be either impermeable or permit of the rapid passage of water. A house on a hill is usually less cold in winter, and cooler in summer than one lying in a neighboring valley. Damp soils and made ground are to be avoided in building. A clay soil is cold, wet and unhealthy, unless thoroughly drained. Grass land about a house is better than arable, both summer and winter. Brick makes a dryer and warmer building material than stone or wood. No garbage, heaps of rubbish, or filth of any kind should be permitted near the house. No waste pit, cesspool, privy, surface nor underground drain should go close to a well; neither should slops or

dish-water be thrown near it, for fear of fouling the water. Every house should have a cellar, with windows, under the whole of the lowest, and a garret or attic, with windows, over the whole of the highest story. Rooms ought to be made of a size to permit of 300 cubic feet, at least, to each occupant. Figure 3 shows a room 15

Fig. 3.



feet long, 10 wide, and 10 high. In the 1500 cubic feet that it contains five persons might live, if the room were well ventilated. The size of a man in the room, and the bulk of the air (14 cubic feet) which he breathes every hour, are shown in proportion. 500 cubic feet to a person, or three persons in such a room, is a better allowance than 300 cubic feet to a person. This subject of pure air and ventilation will be discussed in speaking of the air passages and organs. No room should be without sun a part of the day. For this reason, and because it is a cause of dampness, thick foliage closely about a house is to be avoided.

II. THE FLESH AND MUSCLES.

The word flesh is applied to every soft part of the body, but more especially to the muscles, which are often called muscular flesh. The muscles of animals constitute the lean of the meat which is served up to us as food. They are the active agents of motion in the body, the means by which all our movements are effected. They act like cords attached to levers, and work according to strict mechanical principles. As our movements are diverse and complex, our muscles are numerous, there being about four hundred of

them. Most of them are under the command of the will, being set and kept in motion at our pleasure, and are therefore called *voluntary muscles*. Such, for instance, are those by which we move our limbs. Many of them, however, are entirely beyond the control of the will, it being utterly impossible for us to put or keep them in motion in accordance with our wishes, and are, therefore, called *involuntary muscles*. Such, for instance, are those of the heart and stomach. Still, over some of these involuntary muscles the will exerts a partial control. Though we cannot hasten, lessen, nor stop altogether the beats of the hollow muscle forming the heart, we can, to a limited extent, quicken or suspend the action of the muscles which enable us to breathe; though we are unable to control the movements in the walls of the gullet, stomach and bowels, by which food is carried along the digestive tract, we can to a certain extent interfere in the acts of swallowing and vomiting. The most important actions of the system, the circulation of the blood, and the digestion of food, for instance, are performed by the involuntary muscles. This is wisely ordained, like all the other operations within us. If such nice complicated movements, upon which our lives depend, were left to the direction of our minds, they would occupy too much of our attention, and be naturally neglected during sleep. We are, happily for ourselves, restricted in our control to those muscular movements which can be easily performed, and which do not require to be constantly and regularly kept up in order to maintain life.

The muscles are fleshy bodies, of various lengths and sizes. They are formed of fibres, and connected with the bones by means of sinews. The involuntary muscles are unconnected with bones. Figure 4 shows the striped fibre of a voluntary muscle. The muscle consists of bundles of such fibres, made up of hundreds of smaller fibres, as shown at B. The striped or crossed lines, which characterize voluntary muscles, are shown at A. Involuntary muscular fibre is smooth, without stripes.

Fig. 4.

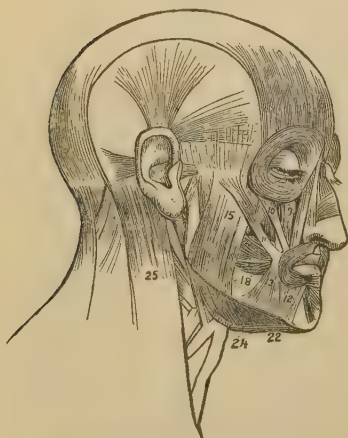


Muscular Fibre.

The voluntary muscles pass from one bone to another, connected with it by a joint, so as to permit the one to move upon the other, like a hinge or a ball and socket. That end of the muscle which adheres to the most fixed part, is called the origin or head; the extremity which adheres to the more movable part, the insertion or tail; the intervening part or body being called the belly of the muscle. The muscles possess the power of shortening or contracting themselves, and, as a necessary consequence of this diminution of their length, move in various directions, upon their joints, the bones to which they are attached. All the motions of the body are, in this manner, performed by the combined action of the various muscles. Thus in eating, the under jaw, by the shortening which takes place in accordance with our wish, of one set of muscles, is drawn up with force, so that the food is crushed and ground by the lower against the upper teeth; this shortening lasts but for a moment, the muscles are then relaxed, and another set draws the jaw down. These movements go on with rapidity while we continue eating.

The muscles which move the jaw and lips are seen in Figure 5.

Fig. 5



Muscles about the Jaws.

Nos. 9, 10 and 11, are those which lift the angle of the mouth; 12 and 13 those which draw the mouth downward; 18 that which draws the mouth backward and presses the food between the teeth; 15 the strong muscle drawing the jaw upward and backward; 22 and 24 that which opens the mouth.

In the sinews of some muscles, little seed-like bones are sometimes developed. They occur near the joints, particularly of the toes and fingers, and are more numerous in men

than in women. The object of these little bones is to allow the sinew to attach itself at a greater angle to the bone the muscle is designed to move, and thus increase its leverage power. The best

example of a development of this kind is seen in the knee-pan, seated in the sinew of the great muscle which extends the leg. This is well displayed in Figure 6.

The *marvelous beauty* of our muscular organization is best shown, not by the operation of a single muscle, wondrous though it be in its simplicity and completeness of means to end, but by the symmetry and harmony of combined muscular movements. The perfection of our organization, in this respect, is remarkably evinced by the fact that no machinist, however ingenious, has ever yet succeeded in building up an automaton which can *walk* like a man. Yet we are able to go through the whole series of complex movements necessary in walking, so readily, as to be scarcely conscious of an effort.

Fig. 6.



Knee-pan and Muscles.

The muscles of different animals, and their limbs, are adapted, by their situation and shape, to the particular kinds of motion their mode of life requires. Thus, in monkeys and apes, who climb trees for their food and to escape beasts of prey, the limbs are especially fitted for climbing, and they go with difficulty on the level ground, either on four legs or two.

The *rapidity* with which muscles can shorten and relax their fibres, is almost inconceivable. Thus, by the movements of the tongue, and other instruments of speech, fifteen hundred letters can be distinctly pronounced in a minute by some people; the production and cessation of these sounds require one or several muscles to contract upon themselves *fifty times in a second*. It has been calculated that in the legs of a dog, running at full speed, muscular

contractions take place *twelve hundred times in a second*, for many minutes together. The wings of many insects, it is well known, strike the air *several thousand times a second*, producing, by the rapidity of their vibrations, a musical note. The power of motion possessed by animals is proportioned to their weight and structure. Could an elephant or a horse leap several hundred times its own length, as a flea can, its weight would crush it to atoms.

Muscles increase in *size* and in *strength* as they are exercised, a fact illustrated by the arm of the blacksmith and the leg of the ballet dancer. We see, therefore, the importance of gymnastic exercise in order to develop the different classes of muscles and to make the body more agile and adroit, and thus more useful to us. But gymnastic exercises recommend themselves for other and higher reasons than the purpose of securing huge muscles and great adroitness of movement. They expand the chest, rid us of superfluous water and fat, excite the action of the skin and lungs, improve the digestion and give tone to the nervous system. In order to obtain full benefit from these, the attention should not be directed chiefly to the attainment of great strength, or even of superior agility. Many practiced gymnasts, while getting and keeping up enormous muscles and the ability to perform feats of astounding agility, ruin their health. Strength and health do not always go hand in hand. Great moderation and judgment are necessary in order to avoid over exciting the action of the heart and lungs, and by excess, inducing exhaustion and disease, rather than health. For family use, a scheme of gymnastics is necessary which may be carried out *without danger*, and *without apparatus*, in which nature herself is made to furnish the means of self-improvement. With this object in view, we give below a series of simple but well studied movements, a succession of efforts at once gentle and energetic, of which each has its reason and object. Let no one smile at the apparent insignificance of certain of the movements. They are all grouped so as to form a complete system of *home exercise* for children and adults, and for both sexes. Greater amusement, and perhaps benefit will be afforded by a number going through the movements together like soldiers under command,

and even to the accompaniment of music. But no class is necessary; every one can exercise himself.

There are few who would fail to derive a benefit which would astonish them, from devoting twenty minutes daily to these graduated exercises. They also form excellent means for the physical education of children.

FIRST MOVEMENT.

Place the hands upon the hips, the heels together, the toes turned out. Turn the head from right to left (six times in each direction), counting *one, two*. The head should be turned so as to carry the chin nearly directly over the shoulder. Bring the head to the front and rest a moment.

Fig. 7.



Movement 1.

SECOND MOVEMENT.

Bend the head to the right and then to the left (six times in each direction), counting *one, two*.

At *one*, incline the head toward the right shoulder; at *two*, raise it and repeat the movement toward the other shoulder.

Fig. 8.



Movement 2.

THIRD MOVEMENT.

Carry the head forward and backward (six times), counting *one, two*.

At *one*, lower the head on the chest; at *two*, raise it and carry it backward.

Fig. 9.



Movement 3.

Fig. 10.



Movement 4.

Fig. 11.



Movement 5.

Fig. 12.



Movement 6.

Fig. 13.



Movement 7.

FOURTH MOVEMENT.

Turn the body to the right and then to the left (six times), counting *one, two*.

At *one*, turn the trunk and upper part of the body toward the right, keeping the legs fixed; at *two*, repeat the same movement in the opposite direction.

FIFTH MOVEMENT.

Bend the trunk to the right and then to the left (six times), counting *one, two*.

At *one*, bend the trunk toward the right, without changing the position of the axis of the body; at *two*, bring it upright and repeat the movement in the opposite direction. No stopping between movements.

SIXTH MOVEMENT.

Incline the body forward and bend it backward (six times), counting *one, two*.

At *one*, incline the body forward without bending the knees; at *two*, straighten it and carry it backward, drawing in the shoulders.

The above six movements should be gone through with slowly.

SEVENTH MOVEMENT.

The fists against the chest, extend the arms up vertically (six times), counting *one, two*.

At *one*, jerk the arms into the air, the hands clenched, the thumbs within. At *two*, return the arms to the chest.

EIGHTH MOVEMENT.

Strike the arms out horizontally forward (six times), counting *one, two*.

At *one*, thrust the arms out, side by side, directly in front; at *two*, draw them quickly back to the chest.

Fig. 14.



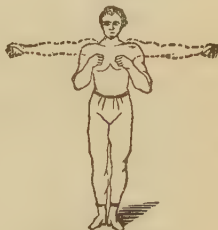
Movement 8.

NINTH MOVEMENT.

The hands being brought near together on the chest, throw the arms horizontally outward and backward (six times), counting *one, two*.

At *one*, extend the arms, in arching slightly the chest; at *two*, bring them back to the chest.

Fig. 15.



Movement 9.

TENTH MOVEMENT.

The wrists being crossed on the back, bend the knees (six times), counting *one, two*.

At *one*, bend slowly the knees, holding the body straight; at *two*, rise without uncrossing the arms.

Fig. 16.



Movement 10.

ELEVENTH MOVEMENT.

The arms being dropped along the sides of the body, bend the knees and extend the arms forward (six times), counting *one, two*.

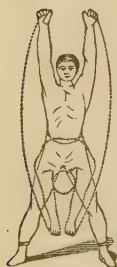
At *one*, bend the knees, resting on the soles of the feet, and at the same time extend the arms horizontally forward; at *two*, rise, bringing the arms back to the sides of the body.

Fig. 17.



Movement 11.

Fig. 18.



Movement 12.

TWELFTH MOVEMENT.

The legs being stretched apart, the arms in the air, balance the body (six times), counting *one, two*.

At *one*, bend the body forward and throw the arms quickly between the knees; at *two*, raise the body and extend the arms above the head. This movement ought to be made with suppleness. Now bring the feet together and the arms to the sides, and rest a minute.

Fig. 19.



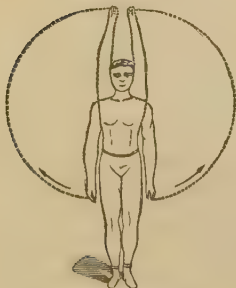
Movement 13.

THIRTEENTH MOVEMENT.

The arms being behind the back and the hands closed, raise the arms vertically (ten times), counting *one, two*.

At *one*, carry the arms, extended, in front of the face, to a straight, vertical position above the head; at *two*, bring them back quickly to the starting position.

Fig. 20.



Movement 14.

FOURTEENTH MOVEMENT.

The hands being open, raise the arms sideways (ten times), counting *one, two*.

At *one*, raise the arms, extended from each side, to the vertical position, above the head; at *two*, let them fall to the side of the body, without bending the elbows.

FIFTEENTH MOVEMENT.

The right foot being advanced, and the left leg well stretched, turn the left arm around with the windmill movement (ten times), counting *one, two, three, etc.*

At *one* carry the left arm backward and then forward, by a circular movement, counting *two* on the second revolution, *three* on the third, etc., until ten turns have been made without stopping. Then repeat the same manœuvre for the right arm, the left foot being advanced.

Fig. 21.



Movement 15.

Fig. 22.



Movement 16.

Fig. 23.

SIXTEENTH MOVEMENT.

The hands being on the hips, raise alternately the knees (ten times), counting *one, two, three, four, etc.*

At *one*, bend the right leg and lift it towards the chest; at *two*, lower it; at *three* and *four*, repeat the same exercise with the left leg.

SEVENTEENTH MOVEMENT.

The hands being on the hips, extend the legs alternately, straight out, as nearly as possible, in front (ten times), counting *one, two, three, four.*

At *one*, extend the right leg, nearly horizontally, in front; at *two*, bring it back to place; at *three* and *four*, repeat the same exercise with the left leg.



Movement 17.

Fig. 24.

EIGHTEENTH MOVEMENT.

The hands being on the hips, carry the legs alternately backward (ten times), counting *one, two, three, four.*

At *one*, throw the right leg backward, in bending lightly the left knee, and slightly leaning forward; at *two*, bring it to place and straighten the body; at *three* and *four*, repeat the same exercise with the left leg.



Movement 18.

Fig. 25.



Movement 19.

NINETEENTH MOVEMENT.

The hands being on the hips, throw the right leg from the side (six times), counting *one, two*.

At *one*, turn the toes of the right foot out, and throw the right leg outward, in turning slightly the head to the same side; at *two*, bring the leg back, keeping the toes out. Repeat the same exercise with the left leg.

Fig. 26.



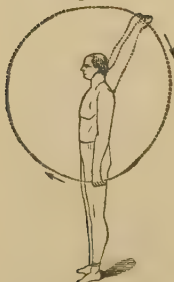
Movement 20.

TWENTIETH MOVEMENT.

The hands being on the hips, stretch out the legs alternately in front (ten times), counting *one, two, three, four*.

At *one*, lift the right bended knee toward the chest; at *two*, extend the leg in front; at *three*, rebend the knee; at *four*, return to place. Repeat the same exercise with the left leg.

Fig. 27.



Movement 21.

TWENTY-FIRST MOVEMENT.

Carry one foot forward and revolve both arms backward together, at the side of the body (ten times), counting *one, two, three, etc.*

The motion is to be kept up without stopping, counting *two* at the second turn, *three* at the third, up to the tenth.

TWENTY-SECOND MOVEMENT.

Carry the right foot forward, and revolve the arms at the sides, in opposite directions (six times), counting *one, two, three*, etc.

At *one*, carry the right foot forward, bending the knee, elevating at the same time the right arm in the air, and extending the left backward. At *two*, revolve the arms forward, the right arm descending in front, while the left is rising behind, by a continued circular movement. Count one at each turn of the arms, to ten,

TWENTY-THIRD MOVEMENT.

The right hand being at the left shoulder, and the left arm stretched out horizontally well back, throw the arms around the body (six times), counting *one, two*.

At *one*, carry the right hand, closed, to the left shoulder, and extend the left arm horizontally, well back; at *two*, throw the arms horizontally about the body, from left to right and from right to left, so as to describe a semicircle.

This exercise should be executed with sufficient vigor to impress upon the trunk a rotation movement upon the hips. The legs should rest immovable.

TWENTY-FOURTH MOVEMENT.

The right foot being in advance, and the two fists against the sides of the chest, thrust the two arms straight forward, and then carry them outward and backward, always extended (six times), counting *one, two, three*, etc.

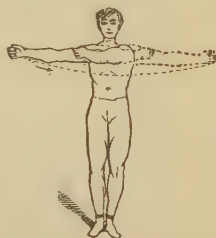
At *one*, carry the closed fists to the chest; at *two*, thrust them quickly

Fig. 28.



Movement 22.

Fig. 29.



Movement 23.

Fig. 30.



Movement 24.

forward; at *three*, carry them outward and backward, always extended horizontally, the head being thrown back.

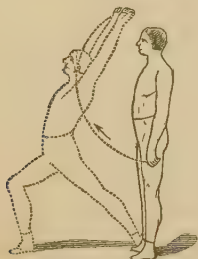
Fig. 31.



Movement 25.

It is the movement of the right arm, indicated by the dotted semi-circle in the figure, which swings the whole body to the right. At *two*, return with vivacity the right leg to the side of the left, and let the arms fall by the side. Repeat the same movement to the left.

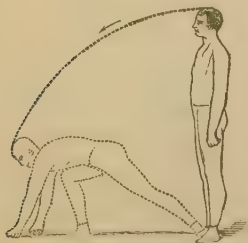
Fig. 32.



Movement 26.

leg back to position, and let the arms fall to the sides. Repeat the same exercise with the left leg.

Fig. 33.



Movement 27.

TWENTY-FIFTH MOVEMENT.

The charging step in fencing (six times), counting *one, two*.

At *one*, make, quickly, a long step, obliquely to the right, carrying, at the same time, the left arm upward and backward, and bending it slightly, so that the wrist will be above the level of the head, and throwing forward the right arm, extended without stiffness.

TWENTY-SIXTH MOVEMENT.

Throwing oneself forward, first on the one, then on the other leg, in elevating the arms in the air (ten times), counting *one, two*.

At *one*, make a long stride forward with the right foot, throwing the arms above the head backward, bending the right knee, and extending energetically the left leg; at *two*, bring the right leg back to position, and let the arms fall to the sides. Repeat the

TWENTY-SEVENTH MOVEMENT.

Bending and throwing the whole body forward (six times), counting *one, two, three*.

At *one*, make a long stride forward with the right foot, as in the preceding movement; at *two*, bend the body over the right leg in letting the hands fall to the floor; at *three*, raise the

body in describing a large circle with the arms, and without bending the left leg. The arms should be brought up side by side, and without any bending, to above the head, and there separated to describe their circle, in being brought down to the sides. Repeat the same exercise with the left leg in advance.

TWENTY-EIGHTH MOVEMENT.

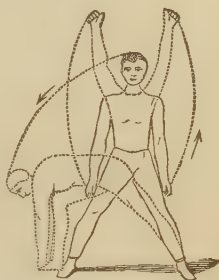
Separating the legs and bending the body to the right and left, in four motions (six times), counting *one, two, three, four*.

At *one*, raise the arms vertically in the air, and extend them well back; at *two*, turn the trunk of the body only, and bend over and down to the right, letting the arms fall in front until the fingers touch the right heel; at *three*, rise, with the arms above the head, as at first; at *four*, turn the body on the hips to the left, and repeat the movements just made, to the right.

Other Forms of Exercise.—*Walking* is a convenient and excellent mode of exercise within the reach of all. A walk, as long as can be taken short of fatigue, a couple of hours after breakfast, or two hours before sunset, with some object in view, in easy shoes sufficiently thick to keep the feet dry, is an admirable “constitutional,” as the English call the daily promenade. *Horseback Exercise* is of great use to those threatened with consumption or disease of the liver, but hurtful to those with piles, or heart disease. *Carriage riding* is of especial benefit to those in such feeble health, or so weak from the effects of a sickness just recovered from, that walking or horseback riding is out of the question. *Dancing*, during the midnight hours and in close rooms, far from being a healthful exercise, as some pretend, is a fertile source of disease to delicate female organizations. *Rowing*, *Swimming* and *Boxing*, are useful for the strong, but dangerous, unless great caution be taken, for those with weak hearts and lungs. *Croquet* and *quoit playing* are admirable out-door sports in which invalids may join.

But our muscles cannot always be in motion; they are intended

Fig. 34.



Movement 28.

for interrupted, not continuous action. Rest and sleep are as necessary as food and exercise.

A portion of each day must be devoted to repose and recreation, as well as to exercise.

“Nor does Apollo always bend his bow.”

In regard to the *amount of sleep* required, few can do with less than eight hours, and the very young and old need ten or more. While there are, doubtless, many sluggards, who relax their bodies and dull their minds by too much sleep, most Americans do not sleep enough. Time is better gained, for both brain work and hand labor, by increasing the attention and energy when awake, than by encroaching upon the hours which should be passed in bed. A short nap in the afternoon is of great service to invalids and old persons. The venerable President Thiers, a remarkably long and hard intellectual worker, takes an hour's siesta every day, toward evening.

Deformities. Stooping and relaxed figures, and round shoulders, are better remedied by strengthening the muscles of the back by judicious exercise, such as we have just recommended, than by strapping on shoulder braces. Properly adjusted light steel braces, with pads, and springs, are, however, of service in cases of “spinal irritation” and curvature. In our work upon female hygiene, “*The Physical Life of Woman*,” we have spoken of the evil effects of tight lacing, and of improperly constructed braces and supports, and need not here dwell upon the subject.

The application of exercise to medicine as a mode of treatment in many diseased conditions, especially for the correction of deformities, has of late received much and increasing attention. An enthusiastic Swede, Ling, first erected a building devoted to the art of healing by regulated exercise, known as “the movement cure.” Such institutions are now quite numerous in Europe. When we come to speak of the various ailments of the body, we shall have occasion to mention and describe these movements in their proper places, in the treatment of the affections in which they may be usefully employed.

III. THE BONES AND JOINTS.

The bones are intended to support the soft parts, the flesh of the body, to form cavities for the protection of the delicate internal organs, and to afford attachment to the various muscles. For these purposes they are well fitted by their strength and hardness.

The analysis of the chemist shows that the bones consist of *one-third* animal matter, as it is called, that is to say of gelatine and blood vessels, and *two-thirds* of earthy matter, that is to say, of the phosphate of lime, and other salts of lime, magnesia and soda. The proportion of the animal to the earthy materials varies at *different ages*. As we get older, the earthy matter in our bones increases in quantity, while the animal matter loses both in quantity and quality, hence the bones become more brittle, and as a consequence, break oftener. In children, as the animal matter is more abundant, the bones are more difficult to fracture, and it is frequently seen after an injury to a limb, which would have broken it outright in more advanced life, that the bone is only bent or partially broken, because of the large amount of flexible animal matter it contains. Many of the diseases to which the bones are liable depend upon a change in the proportionate quantities of their two constituents. This is observed in "rickets," a disease common among the children of scrofulous parents, where the bones become bent and curved under the weight of the body or the action of the muscles.

Bones are divided according to their shape, into four classes: long bones, short bones, flat bones and irregular bones.

The *Long Bones* are placed, principally, in the limbs, where they act as levers, sustain the weight of the body, and give us our powers of motion. They are hollowed cylinders, the central canal being filled up with marrow. Figure 35 shows the thigh bone, one of the long bones of the body.

The *Short Bones* are strong and compact, and are

Fig. 35.

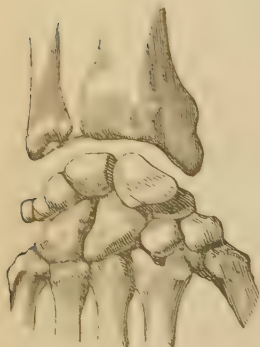


The Thigh Bone.
Example of the
Long Bones.

placed where only slight and limited motion is wanted, as in the wrist. Figure 36 shows the bones of the wrist. The *Flat Bones*

Fig. 37.

Fig. 36.



Wrist Bones—Example of the
Short Bones.



Shoulder Blade—Example of the
Flat Bones.

are thin, broad, flat plates, intended to afford extensive protection to the parts beneath, or to provide a wide surface for the attachment of muscles. The bones of the skull, the breast bone, and the shoulder blades, are examples of flat bones, one of which the shoulder blade, is shown in figure 37.

Fig. 38.



A Vertebra — Example of the
Irregular Bones.

Irregular or Mixed Bones are those which, on account of their shape, cannot be grouped either under the long, short or flat bones. Examples are seen in the chain of bones which make up the spinal column, the *vertebræ*, as they are called, and in the jaw bones. Figure 38 shows, as an example of the irregular bones, a vertebra.

The body contains two hundred and four distinct bones. These are joined together, and form what is called the skeleton. The skull is con-

posed of 8 bones; the face of 14; the ears of 6; the backbone of 26; the chest of 26; the upper limbs of 64; the lower limbs of 60. Children have a few more bones than adults, as a number of their bones afterward unite to form one.

These bones grouped together make up the three great divisions of the body, the head, the trunk, and the extremities.

The *head* includes the skull and face. The skull is a large, bony cavity, made up of eight wide, thin and arched bones, immovably dovetailed into each other. It contains the brain, and gives passage to the spinal marrow through a hole in its lower part, communicating with the canal of the backbone. The face is formed of fourteen bones, the principal being the upper and lower jaws, and of the organs of sight, smell and taste. These bones, like those of the skull, are of complicated forms and difficult to describe.

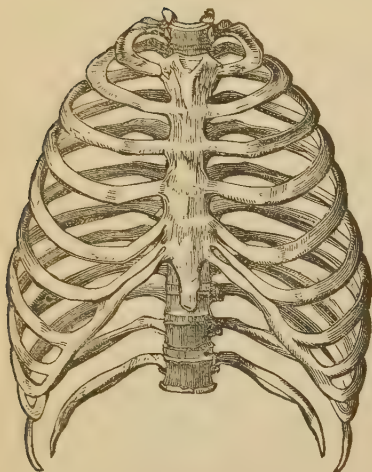
The backbone or spine, is the main support of the *trunk* of the body. It is composed of twenty-six distinct bones, called *vertebræ*, placed one above the other so as to form a pillar or column, on the top of which is the head, so joined as to move freely upon it; see Figure 39. Seven of these *vertebræ* belong to the neck, twelve to the back, five to the loins, and two make the lower end of the column. Anatomists give to these the names, derived from the Latin, of cervical, dorsal, lumbar and sacral *vertebræ*. They increase in size and strength from above downward, so that the bones of the loins (the lumbar *vertebræ*) are much larger and stronger than those of the neck and back. Those of the back (the dorsal *vertebræ*) have attached to them the ribs, twelve in number, on each side, which arch forward and are joined to the breast bone by gristle, forming the cavity or cage of the chest, to contain the heart and lungs, see Figure 40. This cavity is separated from that of the belly

Fig. 39.



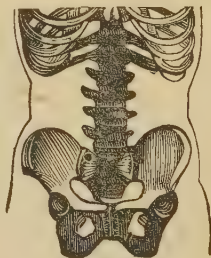
Spinal Column.

Fig. 40.



The Chest Cage.

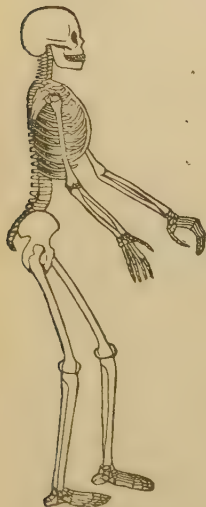
Fig. 41.



The Bones of the Abdomen.

or abdomen, which lies below it, by a muscular curtain attached to the edge of the lower ribs, called the diaphragm, or midriff.

Fig. 42.



The Skeleton.

The cavity of the belly or abdomen, which contains the stomach, liver, spleen, bowels, kidneys, etc., is protected in front and at the sides by skin, fat and muscles only, and has no bony walls excepting below and behind. Its floor is made up of four bones attached to the lower end of the back, and spread out so as to form a sort of basin, called by anatomists, the pelvis, see Figure 41.

Having thus passed in review the bony framework of the head and of the trunk of the body, it only remains for us to say a few words on the *extremities* or limbs, see Figure 42. The upper extremity is composed of the shoulder, which has two bones, the collar bone and the shoulder blade, connecting it with the

trunk; of the arm, which has only one bone, extending from the shoulder-joint to the elbow; of the forearm, which has two bones, extending side by side from the elbow to the wrist; of the wrist, which has eight short bones; and of the hand, which has four bones in each of the four fingers, and three in the thumb. The ends of these bones, where they are joined together, are smooth and polished, so as to move freely and easily upon each other.

The lower extremity is composed of the thigh bone, the largest and strongest bone in the body, which extends from the hip joint to the knee; of the knee-pan, placed in the sinew of the large muscle lying in front of the knee joint; of the two bones of the leg, extending side by side from the knee to the ankle; of the ankle which has seven small bones, one pointing out behind to form the heel; and of the foot, which has the same number of bones as the fingers and thumb, but shorter, and incapable of moving so freely upon each other.

All of these two hundred and four bones which compose the head, trunk and extremities, constituting "the skeleton," are connected together by means of joints. Some of these joints, like those uniting the bones of the skull, are *immovable*, but most of the others are *movable* joints. The movable joints are surrounded by strong, flexible bands, called ligaments, which keep the ends of the bones together in place, while permitting of perfect freedom of movement. When, by severely applied force, the ends of the bones, in spite of the resistance of the bands surrounding them, are thrown out of place, the joint is said to be *dislocated*. The treatment of dislocations will occupy us in the part of this volume devoted to accidents and injuries.

There are four kinds of movable joints: The Gliding Joint, in which the surfaces of the bones glide upon each other, as is seen in the joint between the breast and the collar bones. The Ball and Socket Joint, in which a round head is received into a cup-like cavity, permitting of motion in every direction, as is seen in the hip and shoulder joints. The Hinge Joint, in which the only motion is backward and forward, as is seen in the elbow and knee. The Pivot Joint, in which a pin-like process turns within a ring, as is seen in the attachment of the head to the spinal column.

Various *deformities* in the position and shape of the bones are met with. The defect frequently spoken of as the "growing out of the shoulder blades," is one of the penalties of tight lacing, in girlhood. It also occurs in feeble children growing too rapidly, and then calls for nourishing food and healthful exercise. Constant confinement, writing or painting, with one arm elevated and the other at rest, gives the shoulders a "one-sided" appearance, and the habit of leaning forward imparts to the chest a "dished" appearance, particularly displeasing in women. "Chicken-breasted" or narrow-breasted children require especial attention to their health, little study, and vigorous out-door country life, to escape the fatal disease of the lungs with which they are threatened. "Club-foot" is usually found at birth, but may be developed afterward by fits, spasms, or a vicious habit of walking, owing to the presence of a corn, or sore, which causes the person to tread on one side of the foot, and so distort the bones. It may affect one or both feet, and should always receive prompt attention from the surgeon, when a perfect cure may be confidently expected. The longer the necessary surgical treatment is deferred the more difficult and the more unsatisfactory the operation becomes. Parents who allow children to grow up with this deformity, now so readily remediable, are guilty of a great wrong. The usual cause of "bandy legs" or "bow-legs," is allowing children to walk too soon, at a time when there is too little of that earthy matter, of which we have been speaking, in the bones of the legs, in proportion to the animal matter, to support the weight of the body without bending. Once bent in this way they cannot be straightened.

The Teeth. Though born toothless, we are afterward furnished with two sets of teeth, which appear at different periods of life. The first set, called temporary, milk, or baby teeth, present themselves in infancy. They are twenty in number, four front, two canine, and four grinders in each jaw. The second set, called permanent teeth, also appear early in life. They are thirty-two in number. In each jaw there are four front or cutting teeth (termed also incisors), to divide the food; two canine (the upper are also called eye teeth), to pierce the food; four small or false grinders (named also bicuspids), and six grinders or molars, to grind the food. The last

arrivals, the third grinders, or those furthest back in each jaw, have received the name of wisdom teeth, from their late appearance through the gum. Occasionally a third set of teeth re-garnish the mouth in very advanced life, which are as solid and serviceable as their predecessors.

A few words upon the structure of the teeth. Each tooth has three parts: the crown or body, which projects above the gum; the root or fang, by which it is attached to the jaw; and the neck, which is the narrowed part just below the crown.

Fig. 43.



The Permanent Teeth.

Figure 43 shows the shape of each of these different teeth, in the order in which they occur, on one side of each jaw. On cutting through a tooth a cavity will be found to exist inside, occupying the center of the crown, and running down into each root, to a very small opening at its extremity. This cavity contains the pulp of the tooth, and is furnished with blood vessels and nerves through the small openings at the ends of the roots. This is shown in Figure 44. The solid part of the tooth is composed of three different substances: the ivory, or tooth bone (called also the dentine); the enamel, which covers the crown; and the cement, which covers the root and sets it in its socket. The enamel, the hard and white glittering armor of the tooth, should be carefully cared for, as upon its preservation depends that of the

Fig. 44.



The Inside of a Grinder.

whole tooth. If chipped off, or eaten through by decay, the tooth soon rots and aches. Being mainly composed of lime, it is readily corroded or softened by anything that is sour. The constant use of acid fruits or fluids, as also of very hot or very cold foods or drinks, unless great caution be exercised, is injurious. But, by far the greatest source of injury lies in the fermentation of particles of food indolently left between the teeth. For this reason, the habit should be formed of rinsing the mouth and picking the teeth (but only with a quill, ivory, tortoise shell or gold pick), after each meal. The enamel is sometimes observed to change in color with the state of the health. Thus, in bilious people it turns yellow, and in consumptive people it occasionally becomes of an unnatural pearly whiteness. Receipts for the care of the enamel, by tooth powders and mouth washes, we give later on in their place in the work; for the page consult the index.

The teeth of the upper jaw, in consequence of its having a larger curve than the lower, overlap the teeth of the lower jaw. Thus the edges of the cutting teeth do not blunt each other, as they would if they met.

The periods for the appearance of the first set (the temporary, milk, or baby teeth) are as follows:—

Seventh month, the middle front.

Seventh to tenth month, the side front.

Twelfth to fourteenth month, the front grinders.

Fourteenth to twentieth month, the canine.

Eighteenth to thirty-sixth month, the back grinders.

The second set (the permanent teeth) appear at the following periods, those of the lower jaw showing themselves a short time before those of the upper:—

Six and a half years, the first grinders.

Seventh year, the two middle front.

Eighth year, the two side front.

Ninth year, the first false grinders, or double teeth.

Tenth year, the back false grinders, or double teeth.

Eleventh to twelfth year, the canine.

Twelfth to thirteenth year, the second grinders.

Seventeenth to twenty-first year, the wisdom teeth.

Hygiene of the Teeth. When there is a hereditary tendency to decay of the teeth, especial care should be taken to keep the spaces between them clean and bright. Sometimes, particularly in the case of young girls, the tops of the gums, which become spongy or swollen, hang down between the teeth, and so conceal decay until serious mischief has been done. The teeth should be brushed with a *soft* brush, every morning and evening, and a toothpick used, and the mouth rinsed out with tepid water after every meal, to prevent the accumulation of particles of food between the teeth. The enamel of the teeth is quickly attacked by the acids generated by the decomposition of fragments of food suffered to find a lodging place between the teeth.

To keep the teeth clean, and prevent the deposit of tartar, it is not sufficient to brush their fronts. The backs of the teeth, particularly those of the front teeth of the lower jaw, require attention. A useful brush is especially made for this purpose, and sold by most druggists.

A *tooth-sponge* is often preferable to a tooth-brush, which, if it be hard, hurts the gums and wears the enamel. It is made by attaching a piece of fine sponge, about the size of a walnut, to a handle, and furnishes a very pleasant substitute for a brush when the gums are tender. The sponge enters the inequalities of the teeth more readily than bristles, does not uncover the necks of the teeth by rubbing away the gums, as sometimes happens from injudicious friction with a brush, and can be easily kept clean.

When, in consequence of advancing years, or of neglect of hygiene, the teeth decay and drop out, their place should be supplied by artificial ones, the making of which has now become such an art, and one in which American dentists have acquired so much celebrity. Much of the dyspepsia of old age is to be attributed to the inability to properly chew the food and mix it with the saliva. In such cases, the dentist is the best doctor, and a set of artificial teeth the best stomachic. Attention to this suggestion will, in many instances, remove prolonged ill health, of which the true cause has not been suspected.



CHAPTER II.

THE INSTRUMENTS OF THE BODY AND THEIR OFFICES.

SECTION I.—THE AIR PASSAGES AND ORGANS.—*The Lungs*—Their structure and use—What happens to the breathed air in the air tubes and cells—*On ventilation*—Simple ways of changing the air in a room without draughts.

SECTION II.—THE FOOD PASSAGES AND ORGANS.—The manner in which food reaches the stomach—The process of digestion—The structure of the stomach and bowels—Classification of food—Practical directions for the corpulent for reducing flesh—How to become stouter—Appetite and hunger.

SECTION III.—THE BLOOD PASSAGES AND ORGANS.—The structure and action of the heart—The course of the blood—The capillary vessels, what they are and how they act—The arteries and veins—The changes taking place in the blood, in the lungs, and in the network of small vessels—The office of the blood—How at the same time it nourishes and purifies the body.

SECTION IV.—THE WASTE PASSAGES AND ORGANS.—The action of the lungs, the skin, and the kidneys, in removing the products of waste and decay.

SECTION V.—THE SPECIAL SENSES.—The five gateways of knowledge—*Of Smelling*—How effected—The nose a respirator—Uses of the sense of smell—Its duties as a sentinel—*Of Tasting*—The manner in which the impression of taste is produced—The importance of pleasing the palate of the sick—*Of Touch*—The feelers of the skin—*Of Hearing*—The structure of the ear—How sound reaches the brain—Hints on the hygiene of the ear—*Of Seeing*—The structure of the eye—The offices of its different parts—A ray of light on its journey to the retina—Defects of the eye, their cause and prevention—Short sight—Long sight—Old sight.

SECTION VI.—THE BRAIN AND NERVES.—The structure of the brain—Its office—The distribution of the nerves—Their office.

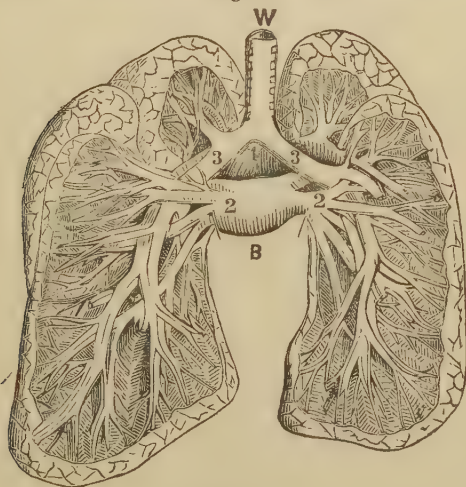
Hitherto we have been occupied with the framework of the body, its coverings and its motions. But the skin, the muscles and the bones, are not the most important parts of our bodies. Within this framework are certain instruments or organs, which perform the

various offices which keep us in life. In order to live we must breathe and eat, our blood must circulate, and the waste products of our bodies must be thrown out of the system; for these purposes we are furnished with air, food, blood, and waste passages and organs. In order to enjoy life, provide ourselves with food, and protect ourselves against injury, we are furnished with special senses, five in number, sight, hearing, smell, taste and touch. We shall, therefore, complete our study of the structure and action of the body, by a consideration of these various passages and organs, and of the senses, which are their servants and guards.

I. THE AIR PASSAGES AND ORGANS.

The air enters the cavities or sacs of our bodies called lungs, by means of the windpipe or air tube, which is divided into two bronchial tubes, which go on breaking in twos and twos, until the tubes

Fig. 45.



The Lungs.

are hardly larger than thick pins. Each of these ultimate delicate tubes end in a little cell or pit, called the "pulmonary cell" or "vesicle," which is only $\frac{1}{75}$ of an inch in diameter. This distribution of the windpipe and its branches is well shown in Figure 45.

W is the windpipe, dividing into the right and left bronchial tubes, 3, which go on subdividing. B indicates the blood vessels which accompany the bronchial tubes; 1, being the pulmonary artery, conveying blood to the lungs; 2, the pulmonary veins, returning it back to the heart. Of the use of these arteries and veins we shall have to speak directly, when we come to the blood passages. The space around the air cells is filled with spongy structure, and the lungs themselves are covered or clothed with a smooth membrane, called the pleura. It is the inflammation of these air cells and of the spongy structure about them, which makes the disease known as lung fever, or pneumonia; inflammation of the membrane covering the lungs is what is known as pleurisy; inflammation of the lining membrane of the air tubes constitutes bronchitis. These diseases and their treatment will be discussed in the second part of this work, devoted to the ailments of the body.

The air, entering by the mouth and nostrils, is conveyed, by the windpipe and its numerous branches, to the minute lung-cells, where it comes in contact with a thin layer of blood spread out around the walls of each cell in tiny blood-vessels. An important change there takes place in the blood thus exposed to the action of the air, which we shall explain shortly.

The lungs are filled with air by the expansion of the chest, effected by the muscles around the ribs, and by the large muscular curtain, the diaphragm, already described, separating the chest from the abdomen. The action of these muscles, though to a limited extent under the control of our will, goes on as previously mentioned, without our knowledge or assent. Death ensues from stopping the motion of the chest, as nearly happened in the case of a negro, whose fine bust induced some artists to take a mould of it. As the plaster in which he was encased set, he could neither cry out nor breathe, and would have perished, if one who knew the actions of the body had not come in and dashed to pieces the cast. With each movement of respiration, we take in and discharge from the lungs about twenty cubic inches, or nearly half a pint, of air. As we breathe about eighteen times a minute, we inspire about three hundred and sixty cubic inches of air a minute, fourteen cubic feet an hour, or nearly three hundred and fifty cubic feet daily.

What happens to the air thus breathed? Most of our readers know that the atmospheric air is almost entirely a mixture of two gases, oxygen and nitrogen, in the proportion of about one-fifth oxygen to four-fifths nitrogen. It also contains a very small quantity of carbonic acid gas, about one part in two thousand, a varying amount of watery vapor, and some traces of ammonia. But these ingredients are altogether insignificant beside the oxygen and nitrogen which constitute its great mass. After expulsion from the lungs, the air is found, when collected and examined, to have undergone the following important changes: it has lost oxygen, it has gained carbonic acid, and it has absorbed the vapor of water. It has also become somewhat warmer. But by far the most important change which has taken place in the breathed air, is its loss of oxygen and its absorption of carbonic acid. The lost oxygen has gone to, and the gained carbonic acid has come from, the blood, passing through the thin covering of the blood-vessels spread in a fine network about the air-cells of the lungs. This supply of oxygen to the blood, and the escape of carbonic acid from it, is necessary to life; if it be interrupted only for a few minutes, death follows.

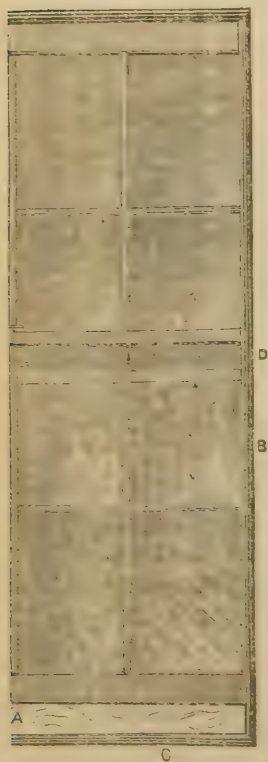
The carbonic acid thus thrown out contaminates the air about us, and unfits it for rebreathing. The quantity exhaled from the lungs varies with the sex, the age, and the constitution. Men produce a larger quantity than women, usually nearly twice as much between the ages of sixteen and forty. The quantity increases in the male from eight to thirty years of age, and then begins to decrease, so that near the close of life the quantity may be no greater than at ten years of age. With women, on the contrary, the quantity increases from eight years of age until about the fourteenth year is reached, and then remains stationary until about the age of forty, when it decreases, as in men, towards old age. The stronger the constitution and the more developed the muscles, the greater the quantity of carbonic acid given off from the lungs in both sexes. The quantity is increased during digestion and active exercise; lessened by sleep, repose, fatigue, and whatever interferes with perfect health.

The process of breathing is not strictly limited to the lungs, but this exchange of oxygen from the air for carbonic acid from the blood,

takes place, to a certain extent, through the skin, as mentioned in the chapter on the external coverings of the body. That this exchange of gases actually takes place through the skin, has been ingeniously proved by enclosing one of the limbs in an air-tight case, when it was found that the confined air lost oxygen and gained carbonic acid. It is supposed that from the whole surface of the human body a quantity of carbonic acid escapes equal to about one-sixtieth to one-thirtieth of that given off, during the same period, from the lungs.

We now understand why rebreathed air and close rooms are poisonous, and see the necessity of ventilation, the object of which is to furnish us with a constant supply of pure air for breathing.

Fig. 46.



Window Sash Ventilator.

Ventilation. Air, to be fit for breathing, should be changed at the rate of about two thousand cubic feet an hour for each person. In constructing houses, every room should be furnished with ventilators, on the system of "base ventilation," which permits of the escape of the vitiated air, not from the top of the room, but from openings near the floor. The open fire-place acts upon this principle, and, as is well known, is one of the best of ventilators. The windows are the only means for ventilation provided in most houses; and as these are closed in stormy weather, and occasion direct drafts when open, they answer the purpose very imperfectly. A number of ingenious window-sash ventilators have been lately invented and patented, which are permanently fitted to the sash, and supply fresh air in small currents, without any direct draft, while

the window itself is closed and securely fastened. A simple, effective,

and "non-patented" window ventilator may be readily made out of a piece of board the exact breadth of the lower sash. This board is placed under the lower sash, which is thus raised a few inches, and its upper edge elevated above the lower edge of the upper sash, so that a current of air passes through the opening so formed, without causing any direct draft. Figure 46 gives a very clear idea of this simple method of ventilation. A represents the piece of wood, an inch or more in thickness, three inches wide, and the length of the breadth of the window. If this slip be well fitted, no draft will occur between it and the sill, or the frame of the sash. D shows the separation between the lower edge of the upper sash and the upper edge of the lower; and the arrows the perpendicular currents of air passing in and out of the room, without any inconvenience from draft or exposure to rain.

II. THE FOOD PASSAGES AND ORGANS.

The body is a working machine, and, like all other machines, wears away in use. Our bones and muscles, so firm and strong, need constant repair to keep them so. For this purpose, food is necessary, and a series of instruments or organs by which it may be changed within us into flesh and bone. We are, therefore, furnished with teeth to chew, palates to taste, throats to swallow, stomachs to digest, and bowels to carry off refuse matter.

Food, in the first place, is taken into the mouth. It is there mixed with saliva, and cut and ground into a sort of paste by the jaws and teeth. The lower jaw moves in every way, so that we chop like a dog and grind like a cow. This operation is a very necessary one, and should never be hastily performed. If the food be bolted in undivided masses, it lies for a long time in the stomach, which it irritates and disturbs, while, if well chewed, it is readily attacked by the juices of the stomach and quickly digested. The chewed mass, when swallowed, enters a long muscular canal, the gullet, which passes through the chest, behind the heart and lungs, and is thus conveyed to the stomach. The stomach is an irregularly shaped muscular bag or sac, curved upon itself, lying in the upper part of the abdomen, at the spot commonly named the "pit of the

stomach." It is the principal organ of digestion, measuring in the average, when moderately full, about twelve inches across and about four inches up and down, and containing easily a quart of water. It is capable, however, of great extension or contraction, according to the amount put into it. There are two openings; one at its highest part, communicating with the gullet, the other a lower one, on its right side, communicating with the small bowels. The food here comes in contact with a peculiar fluid, called the *gastric juice*, with which it is thoroughly intermixed by the movements of the stomach, which rock, as it were, the food to and fro. The gastric juice is nearly tasteless, colorless, and odorless, but acts in a most powerful manner upon the substances exposed to its influence, converting them into a grayish mass, like thick cream, called *chyme*. The process of digesting or dissolving the food in the stomach being thus completed, a portion of it is slowly taken up by the veins, and the rest passes out through the lower opening into the small or first bowel. Liquids taken into the stomach are, for the most part, sucked up by the blood-vessels in its walls, and do not enter the small bowel. The solid food, thus converted into chyme, is now subjected, in the small bowel, to the action of the bile and the pancreatic juice. The bile is a very bitter fluid, prepared by the liver, a large organ placed in the right side of the abdomen, just beneath the ribs. The bile is collected in the gall bladder, where it is reserved for use. The pancreatic juice, which looks very much like the saliva, is prepared by the pancreas, an organ lying just below the stomach. Neither sugar, starchy nor oily or fatty matters are dissolved in the stomach, but in the small intestine, by the action of these two fluids, which also secure the proper digestion of other parts of the food that may have escaped the stomach. When the chyme comes in contact with these two fluids, it is separated into two parts, the one a thin, whitish, milk-like liquid, called *chyle*; the other is the portion of the food unfit for nourishment, which is rejected and thrown out of the bowels as useless. The chyle is sucked up by an army of minute vessels, which have their mouths in the walls of the small bowel. It is emptied by these numerous vessels into a long tube, about the size of a goose-quill, called the *thoracic duct*. This duct, eighteen to twenty inches in length in the adult,

ascends the abdomen along the back, resting against the spine, and pours its contents, under the left collar bone, into the vein coming from the left arm, where they mingle with the blood, and so the food finally enters the circulation, becomes a part of the blood, and is carried throughout the body by the heart, arteries and veins.

The *colored frontispiece* of this book shows in a beautiful manner these food passages and organs, in a way which makes them clear to every one. On lifting the leaf an inside view of the cavities of the chest and abdomen is obtained. We see the little white vessels carrying the chyle, coming from all points, grouping themselves into knots, and finally uniting to constitute the reservoir of the thoracic duct, *vp*, from which the duct, *ct*, starts, which ascends, resting against the spinal column, passing behind the blood vessels of the neck, and opening into the vein coming from the left arm, *vs g*. Over this picture of the open trunk is seen one of the digestive canal, from the mouth to the lower bowels, namely, the mouth, *b*; the gullet, *æ*; the stomach, *e*; the opening from the stomach to the small bowel, *py*; the liver, *f*; the small bowel, *iii*; the pouch which begins the large bowel, *cæ*; the transverse portion of the large bowel, *ct*, and the descending portion of the large bowel, *cd*.

The *small bowel* is that part of the digestive canal where the food already acted upon by the stomach and converted into what is called *chyme*, as already explained, is mixed with the bile, the pancreatic juice, and the products of various glands imbedded in the walls of the bowel, and where the separation of the nutritive principle of the food, called *chyle*, is effected, as we have just shown. It is a curved or rolled up tube, twenty feet long, with folds to prevent the contents from passing along too rapidly, with little pits and gland-cells, which pour out fluid, and with minute processes projecting from its walls, through which the small white vessels, called *lacteals*, suck up the chyle, to carry it to the reservoir, in the manner just pointed out. The small bowel is designated by the letters *iii* in the colored frontispiece.

The *large bowel* is about five feet long, and passes from the right haunch, where it has valves to prevent its contents from returning into the small bowel, to below the left haunch. The muscles in the walls of the bowels, which, as was pointed out in speaking of the muscular system, in the first chapter, belong to the class of *involun-*

tary muscles, give worm-like movements to the bowels, which propel their contents and expel them when all that is useful to the blood has been extracted.

Food may be divided into those articles that warm us, as fat, starch and sugar, and those that form us, as the flesh of animals. The heat-foods are also fattening foods. Hence the corpulent should be chary in the consumption of fats and vegetables, which contain starch and sugar in large quantities; on the contrary, those who are too lean should partake freely of these substances. *The articles which the corpulent should specially be frugal in the use of are:* bread, butter, milk, sugar, sweet and white potatoes, molasses, fat meat, Indian corn, pastry, beer. The more nearly these articles are excluded altogether from the table, the more rapid will be the reduction of weight. At the same time, as little fluids of all kinds should be drank as is consistent with comfort. To decrease in size, the diet, therefore, should consist principally of animal food. To increase in size, a diet largely vegetable is required: among the vegetables, the roots are ordinarily particularly fattening, while those which ripen above ground are less so. *The articles which spare persons should avoid if they desire to become stouter are:* pickles, vinegars, highly spiced food, sour wines or fruits, acid vegetables. Those who think themselves too fat or too thin, should frequently weigh themselves, so as to learn what articles of food are, in their individual cases, the most fattening. Thus some have found in their own persons that *sugar* is that which most rapidly heaps up fat; others find *fresh milk* the most fattening; while with not a few, *starch*, in the form of arrowroot, sago, tapioca, or farina, is the most rapidly converted into fat.

The above remarks contain, in a few words, the secret of Bantingism, the doctrines of Mr. Banting, that puffy Englishman whose writings on corpulence have lately attracted so much attention.

The foods which principally furnish us with heat and fat, have also nearly all the business of supplying us with force to work the machinery of the body. The body may be aptly compared to the steam engine, and food to its fuel. The masses of iron, steel and brass which make up the engine, are as useless without the fuel to create heat, and thus force and motion, as would be the bones,

muscles, sinews, blood vessels and nerves, which make up our body, without the food to give birth to heat and force within us. But the steam engine differs from the human body, in the fact that its parts, when they wear out, can be removed and renewed. No such rough method of repair is possible in the case of the body, which is a machine constantly working, constantly wasting, and constantly repairing its own wear and tear. Food is, therefore, more to us than fuel is to the steam engine; as it has the threefold office of supplying us with heat, with the means of motion, and with the elements of repair. Hence it must consist of more than one kind of material. If we regard bread and meat as the staple of life, we find all that is necessary for the threefold mission of giving heat, force and substance. The bread is composed chiefly of starch, which may be compared to the coal of the steam engine; the meat is composed of two parts, the fat and the lean, of which the former aids the starch in propelling the machine, and the latter repairs the waste.

A few hours' *want of food* causes, in a healthy person, appetite; longer abstinence, gives rise to hunger. The symptoms of starvation, faintness, coldness, shrinking of the body, and wandering of the mind, result, if no food be had for a day or two. Death ensues, usually, at the end of about a week's total deprivation of food and water, that is to say, when the body has consumed about two fifths of itself, for when a person has nothing to eat he lives upon himself. But if water be taken, a case upon record shows that life may be prolonged, entirely without solid food, during thirteen days. Thirst is more quickly fatal than hunger, because of the thickening of the blood which rapidly takes place. An urgent feeling of hunger is not a prominent symptom in cases of gradual starvation; if it exist at first it soon disappears, and is followed by a feeling of exhaustion, faintness, and even loathing of food, and death is ushered in by listlessness and torpor. Thus we find in this, as in other modes by which death may approach,

"Many are the ways that lead
To his grim cave, all dismal; yet to sense
More terrible at the entrance than within."

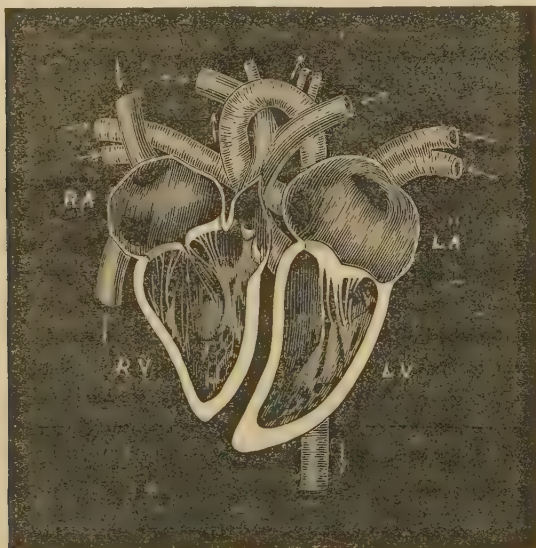
The proper treatment of starvation will occupy us when we come to speak of the ailments of the body. It is an important subject,

as not only sailors and travelers, but also the poor waifs of our streets (for people yet die of quick as well as slow starvation in our large cities), have, when rescued, lost their lives through the ill-advised efforts of their zealous but ignorant benefactors.

III. THE BLOOD PASSAGES AND ORGANS.

The blood in our bodies is in constant motion. This motion is called the circulation, and takes place through the heart, arteries and veins. The mainspring of the circulation is the hollow muscle called the heart; the pipes or canals which carry the blood from the

Fig. 47.



Inside of the Heart.

heart to the different parts of the body are called the arteries, and those which bring it back to the heart after it has made its course are called the veins.

The *heart*, in size somewhat larger than the fist, is double, consisting of two parts, each forming a complete and distinct organ. They are separated from each other internally, though their walls are united externally, and are known under the names of the right and

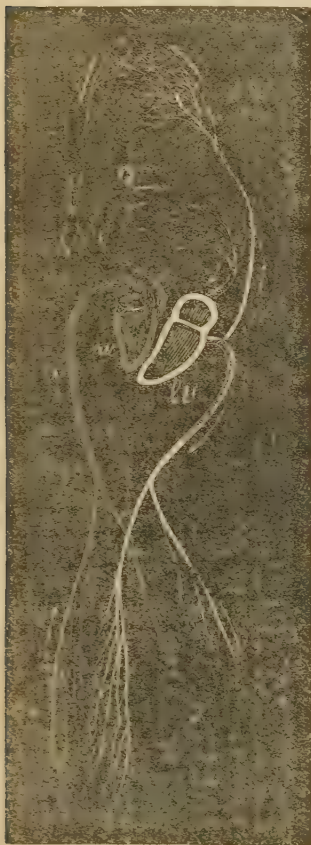
left sides of the heart; one, the right, pumping the blood to the lungs; the other pumping it through the body. They are each subdivided into two rooms or cavities, holding about a wineglassful of blood, the upper, called the auricle, the lower, called the ventricle. This is well shown in Figure 47, representing the heart cut through, with each half turned back, so as to display the structure of the two sides, which, it must not be forgotten, do not communicate directly the one with the other.

The right side of the heart has its own work to do, very different from that performed by the left side. It is the province of the *right side* to receive the blood from all parts of the body, brought to it by two veins, which open into the right auricle, *ra*, whence it passes into the right ventricle *rv*, and to send it to the lungs through the large vessel, shown in the figure, called the pulmonary artery. It is the province of the *left side* of the heart, on the contrary, to receive the blood from the lungs, brought to it by four veins, called the pulmonary veins, which open into the left auricle, *la*, whence it passes into the left ventricle, *lv*, and to send it to the body through the large artery, shown in the figure, called the aorta. The direction of the arrows indicate the course of the blood. Thus, it will be seen, there is a double circulation as well as a double heart; one round of circulation from the lower chamber of the right side of the heart (the right ventricle), through the lungs, to the upper chamber of the left side of the heart (the left auricle); the other round of circulation from the lower chamber of the left side of the heart (the left ventricle), through the body, to the upper chamber of the right side of the heart (the right auricle).

The *rapidity* with which the blood circulates through the body varies at different hours of the day, being the greatest when the necessity is the most urgent. After a meal, for instance, the heart's action is increased, rising a number of beats per minute, for one and a half to two hours, or more, after which it lessens until the next meal, when it again rises and falls. The pulsation of the heart is the slowest and the most feeble during the night, between two and five in the winter, and between one and three in the summer. At these hours, therefore, many persons who are very ill die, and the sick require the most careful watching.

Figure 48 shows a scheme or plan of the circulation. The uppermost circuit is that of the head, neck, and arms, the middle that of the lungs, and the lower that of the trunk and lower limbs.

Fig. 48.



Plan of the Circulation of the Blood.

The lines on the right side of the figure (the left side of the heart) indicate arteries, by which the blood is conveyed from the heart; the lines on the left side of the figure (the right side of the heart) indicate the veins, by which the blood is returned to the heart.

The course of the blood through the heart is, therefore, as follows: From the two great veins, one from the upper, and the other from the lower part of the body, it passes into the right auricle, *ra*, Figure 47, and from the right auricle into the right ventricle, *rv*. This right ventricle contracts forcibly, driving the blood through the pulmonary artery to the lungs, it being prevented from returning into the right auricle by the closing of the little doors or valves which guard the opening. Returning from the lungs, it enters, by the four pulmonary veins, the left auricle, *la*, thence passes into the left ventricle, *lv*, from which it is driven with great force into the large artery, the aorta, which dis-

tributes it, by means of its ramifications, throughout the body. The passage ways from the auricles to the ventricles, as well as the mouth of the pulmonary artery, which leads to the lungs, and that of the main artery, the aorta, which leads to the general system, are furnished with doors or valves, which prevent the blood from

going out of its right course. These valves are often put out of order by rheumatism, an ailment which is, therefore, especially to be dreaded, because of the permanent heart disease which sometimes follows it.

The arteries end and the veins begin, that is to say, they are connected together, by an infinite number of small vessels, called *capillaries*, so named because they are as fine as a hair. These capillaries are of different sizes, and branch in various directions all over the body, being woven into every part, and it is by them that the blood is brought into intimate contact with the substance of the tissues, and spends itself as it passes through them, on its way from the arteries to the veins, to be returned to the heart for another round.

Figure 49 shows the manner in which these capillaries are interlaced in the web of a frog, which being transparent, displays beautifully, under the microscope, the passage of the blood in these minute vessels, which, on account of their fineness, admit only a single blood cell at a time. The cells which crowd the blood rush in from the artery, pass, one at a time, slowly along these capillaries, lingering to nourish the tissues and take up their waste, and then hurry away by the vein. Or, as Dr. Holmes poetically expresses it,

Fig. 49.



Magnified Capillary Vessels.

“Far and wide a crimson jet
Leaps forth to fill the woven net,
Which in unnumber'd crossing tides
The flood of burning life divides,
Then, kindling each decaying part,
Creeps back to find the throbbing heart.”

The action of the heart and the course of the blood, constituting what is known as “the circulation,” was discovered and first described by Dr. Harvey, an eminent English physician, in 1619. Twenty years previous to this, however, the great poet of nature,

Shakspeare, indicated the way the blood goes in fainting, and what, in that condition, should be guarded against, as follows:—

“Why does my blood thus muster to my heart,
 Making both it unable for itself
 And dispossessing all my other parts
 Of necessary fitness?
 So play the foolish throngs with one who swoons;
 Come all to help him, and so stop the air,
 By which he should revive.”

The blood does not flow through the heart steadily and continuously, but is impelled through by alternate contractions and relaxations of the muscular walls; at each squeezing together of the sides, a successive portion of blood is received by the auricles, delivered into the ventricles, and by them discharged into the arteries. Each of these actions is called a *beat* or *pulsation* of the heart, and as they occur every second, there are, during an ordinary life, three thousand millions of beats, *without a break*.

The Arteries and Veins. We have spoken of the heart as the organ into which the veins open, and from which the arteries arise, and of the capillaries, as the minute vessels interwoven throughout the tissues, in which the arteries end, and from which the veins begin. It now remains for us to say a few words in regard to these arteries and veins themselves. The main artery is the *aorta*, which, as already mentioned, is given off from the lower chamber of the left side of the heart (the left ventricle). In man it is about an inch in bore, but in the whale it is over a yard in diameter. It furnishes branches for the head and arms, curves to the back of the chest, supplies the organs in the trunk, and ends at the loins in two branches, for the haunches and legs. These various branches go on dividing and subdividing into smaller and smaller vessels, which finally end in the capillaries. The veins which begin at the capillaries run into each other, uniting, so as to form fewer and fewer, and larger and larger vessels, until finally they make but two, one from the upper, and the other from the lower part of the body, which pour their contents into the upper chamber of the right side of the heart (the right auricle). The knots in the veins, which may be distinctly seen in those on the back of the hand, are made

by the little valves inside, which open toward the heart so as to permit of the passage of the blood in that direction, and prevent it from going in the other.

The Blood. When the blood has passed through the system, and arrives at the right side of the heart, it is of a dark bluish red or purple color, approaching almost to black. Because of its color, it is commonly called black blood. It is unfit for circulation in the vessels, or for accomplishing its great work, the nourishment of the different parts of the body. In this condition it is sent to the lungs. When speaking of the air passages and organs, we described the lungs as made up of a collection of air tubes, terminating in air cells, surrounded by blood vessels, and explained the manner in which the air was drawn through the windpipe, and distributed to every part of the lungs, and thus brought in contact with the blood contained in the thinly-coated blood vessels running around the air-cells. We also mentioned that the air, while in the lungs, lost some of its oxygen, and received carbonic acid. The dark, venous blood, unfit for circulation and nourishment, is sent to the lungs from the right side of the heart, in order to receive oxygen from the air, and to give off carbonic acid. There, it changes color, and becomes of a bright crimson or vermillion hue. Then, being fitted for the purposes of life, it is brought to the left side of the heart, to be distributed (through the ramifications of the great artery, the aorta, which, as we have seen, supplies the whole body with blood) to the network of capillary, or hair-like, vessels, spread out in the substance of all the structures and tissues of the body. Here, in this system of capillary vessels, while going to the veins, it undergoes a change exactly opposite to that it experienced in the lungs. It loses its bright red color and becomes of a dark purple hue. This change is in consequence of the office which the blood performs in the nutrition of the body, in parting with some of its constituents, which combine with the texture of the flesh, tissues and bones, in order to supply waste and maintain life.

But this is not the only office of the blood, important as it is—to serve as a kind of fluid flesh, and bone, and brain, and to bring, during a year, as it is calculated to do, over a ton of material from the food, for the building of our bodies. It is also the great drain,

which carries to the lungs, skin and kidneys, to be cast out of the system, the broken down products of wear and tear, which, if retained, would soon destroy us. Wonderful fluid, which at one and the same time imparts the germs of life, and bears away the poisonous results of decay.

In speaking of the food passages and organs, we have shown how the blood is renewed, and in treating of the blood passages and organs, have just explained how it is spread throughout the body. It now remains for us to study the means by which it is cleansed, namely, the waste passages and organs.

IV. THE WASTE PASSAGES AND ORGANS.

Every part of the body is in a constant state of change; the food we swallow and the air we breathe are converted into the natural ingredients which make up our tissues. While, on the one hand, we are thus constantly supplying ourselves with materials for repair and growth, on the other there is steadily going on within us a process of waste and decomposition. Thus Nature

“Builds life on death—on change duration founds.”

The food we eat and convert into flesh and bone does not remain long in this shape, but almost immediately begins to decompose and pass out of the body. If the discharge of these products of decomposition, which represent the waste of the system, is interfered with, they accumulate, become poisonous, and destroy life. We see, therefore, that the passages and organs for the carrying off of the waste of the body are quite as important as those which furnish it with nutriment. These waste products pass out through the lungs, the skin, the liver and the bowels, but principally through the kidneys, which alone of all the organs of the body do not supply anything for our growth or sustenance, but merely expel or drain away that which is useless, and which, if retained, would soon become hurtful.

The kidneys are two in number, one on each side, in the back part of the lower portion of the abdominal cavity. Each is about four inches in length, two in breadth, and one in thickness. Th

quantity of fluid which they discharge is about two pints daily in a healthy adult.

We have now seen how food is taken into the stomach, the manner in which it is digested, and finally absorbed by the blood, and how the air is taken into the lungs, and the manner in which it supplies oxygen to the blood, and have also learned how the carbonic acid and other waste substances are discharged from the body. It becomes, therefore, interesting to know the absolute quantity of matter thus absorbed by and ejected from the body each day. The healthy adult absorbs and discharges daily rather more than seven pounds. In the seven pounds of matter absorbed, water figures for nearly five pounds, oxygen for one pound, the rest consisting of the various ingredients of food. In the seven pounds of matter discharged, carbonic acid and the vapor of water expelled from the lungs figure for over a pound each, the perspiration for nearly two pounds, the bowels and the kidneys throwing off the rest. Hence it follows that in a person of the average weight of 140 pounds a quantity of material equal to the entire weight of the body passes through the system every twenty days. The whole substance of which the body is composed is, therefore, incessantly renewed, under the operation of that mysterious influence which we term life.

V. THE SPECIAL SENSES.

We, in common with all other animals known to us, have certain peculiar faculties, called the *special senses*, by which we obtain information as to the things in the world about us which we could get in no other way. No animal is without some of these senses, and none has more than five of these gateways of knowledge, namely, the senses of smell, of taste, of touch, of hearing, and of seeing. Each of these instruments of sensation has its own exclusive office. Thus, odors are only known to us through the sense of smell; sounds, however loud, and light, however intense, can only be appreciated by the ear and eye. It is to the nerves that we are indebted for the conveyance of these sensations to our minds; and

it is one of the most mysterious parts of our nature that nerves which are nearly alike all over the body, should, when distributed over the nose, the tongue, the ear, the eye, carry to our minds feelings so different.

We shall begin the study of the special senses with that

Of Smelling. The nose is the instrument of the sense of smell. The nerves of this sense, called the olfactory nerves, are distributed, in almost a naked condition, over the lining membrane of the nostrils, so as to freely expose them to the air, which bears the odorous particles to them when passing through the nose in the act of breathing. In order, however, to protect them from acrid odors and the undue action of the atmosphere, the nostrils secrete a thick, insipid mucus.

In the acuteness of this sense we are inferior to many of the lower animals. In the dog, for instance, as every one has observed, it is very acute and delicate. Not only can he thus track different kinds of game in the forest, but he can recognize particular individuals and the articles of their dress, by their odor. and even, incredible as it would be to us, were it not a matter of common observation, can trace the odor of his master's feet through all the winding streets of a populous city.

It is worthy of note that the senses of smelling and of tasting are in all animals placed near each other. Brute animals select their food chiefly by the sense of smell, and even we, in this selection, are greatly influenced by it. The two senses are, therefore, placed together, like two sentinels over all that which passes our lips.

It is not out of place here to remark, speaking of the nose, that the habit of *breathing through the mouth* instead of the nostrils is an injurious one, and one that the children must not be permitted to form. Teach them to keep the mouth shut when not eating or talking. The nose is a natural respirator, furnished with means for warming and moistening the air breathed, as well as with the sense of smell, for warning us against noxious airs and vapors.

Children should not be permitted to form the habit of *picking the nose*, which often gives rise to troublesome sores. If the prac-

tice be due to the presence of worms in the bowels, as is sometimes the case, the proper treatment, which we shall mention when we treat of that ailment, will remove the cause.

The sense of smell is a lowly faculty, ranking below sight and hearing. Though we are more readily moved through the ear than the nose, yet to many the sweet breath of flowers in the air is as the warbling of music. The poets have recognized in the sweet scents of nature a deep meaning and a spiritual association. Thus, Tennyson, in his "Dream of Fair Women:"

"The smell of violets, hidden in the green,
Poured back into my empty soul and frame
The times when I remember to have been
Joyful and free from blame."

Of Tasting. The tongue and palate are the instruments of the sense of taste. The tongue, however, is more particularly the seat of this sense. The saliva which constantly moistens it, though tasteless itself, is one of the great causes of all tastes, and every substance brought in contact with the tongue is partially dissolved by it before we can taste. In fevers and other diseases where the tongue becomes dry and coated, the sense of taste is impaired or annulled.

A substance is not properly tasted until it is pressed by the tongue against the roof of the mouth, and, indeed, its full flavor is not brought out until it is actually swallowed. From this arises the pleasure we have in chewing and swallowing. The whole internal surface of the mouth and throat being thus brought around about the savory morsel, we have the highest enjoyment of which this sense is capable.

The impression of taste lingers upon the tongue for some time after the substance has been ejected or swallowed. This is particularly the case with articles very bitter or very sweet. We are, therefore, unable to detect and appreciate several different flavors in rapid succession, the taste of the first resting in the mouth mingles with and masks the second, and this the third, and so on. This fact can be utilized in giving disagreeable medicines. If some highly flavored and pungent substance be first taken in the mouth,

a nauseous draught may be swallowed immediately after, without discomfort.

It has been well said that what is salutary for the stomach is generally pleasant to the taste. Animals are influenced more than we are by the sense of taste in the selection of food ; we are governed a great deal by our judgment and experience, and too often by our prejudices, in what we eat and drink. Some persons have a natural aversion to particular articles of food which are ordinarily agreeable. Surfeit, produced by overloading the stomach, is frequently a cause of disgust, ever after, for the dish so imprudently indulged in. That tastes may be cultivated is a matter of daily experience. Children should not be allowed to be finical at the table, and grow up with antipathies for usual and healthful articles of food.

In health, and particularly in sickness, food that is enjoyed in the eating is far more nutritious than that which is indifferent or unpleasant to the palate. This is an important physiological fact, too frequently overlooked in the treatment of disease. We, therefore, give, in Part Fourth, Chapter Eleventh, of this work a large number of choice and novel receipts for the preparation of delicacies for the sick table. We cannot too much insist upon the usefulness of pleasant flavors to secure the taking and digestion of wholesome food by those who most need such nourishment.

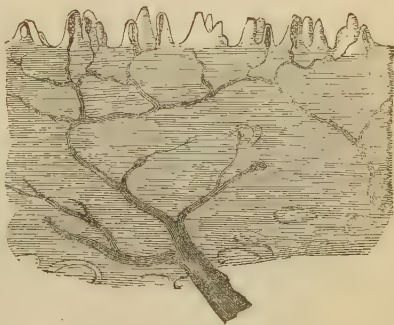
Of Touch. The sense of feeling, or of touch, differs from the other senses, in being extended over all parts of the body, internal as well as external, while the others are confined to particular organs situated in the head. But what is called the sense of touch is properly restricted to the sensation imparted by the contact of objects with the skin, and more particularly with the tips of the fingers. The sensation produced by the contact of an object is, however, precisely the same in character, whether felt by the tips of the fingers, the backs of the hands, the lips, cheeks or other parts, differing only in the degree of its development.

In describing the skin, we spoke of the nipple-like elevations, similar to the nap of velvet, although very much smaller, produced by the terminations of the nerves on the surface of the skin. These little protuberances have received the name of *papillæ*. They are the animal feelers, the immediate instruments of the sense of touch.

By them we appreciate roughness, smoothness, and other characters of the surface of objects. They are very numerous about the points of the fingers. They

are well shown in the cut surface, greatly magnified of the skin of the front of the fore-finger, in Figure 50. There are seen the branches of the nerves of the sense of touch, which, after numerous ramifications, terminate in the minute protuberances, the *papillæ*, shown on the surface of the true skin. The

Fig. 50.



The Feelers of the Skin.

improvement of which the sense of touch is capable, by practice, is illustrated by the wonderful skill acquired by the blind.

Of Hearing. The instrument or organ of this sense is the ear, which collects and transmits sounds to the nerve of hearing, to be conveyed to the mind. It is a very beautiful, delicate, and complex structure, that we will try, in plain language, with the aid of excellent, carefully-made engravings, to describe clearly to the reader.

The ear consists of three parts: the *outer ear*; the *middle ear*, called also, from its character and office, the “drum;” and the *inner ear*, which, from its intricate and involved form, has also received the name of the “labyrinth.” There are two tubes or canals leading to the middle ear or drum, one from the outer ear, called the Auditory (that is to say the hearing) Canal, and the other from the throat, called, after the Italian physician, Eustachius, who first described it, the Eustachian tube.

The outer ear is that expanded, trumpet-shaped, gristly portion at the side of the head, that we can all see and touch. Its object is to collect the waves or vibrations of air, which produce sounds, and direct them through the auditory canal, to the middle ear. In quadrupeds the outer ears are large, and furnished with muscles by which they can be erected, and carried from side to side, in order the better to collect the waves of sound. Although we have the

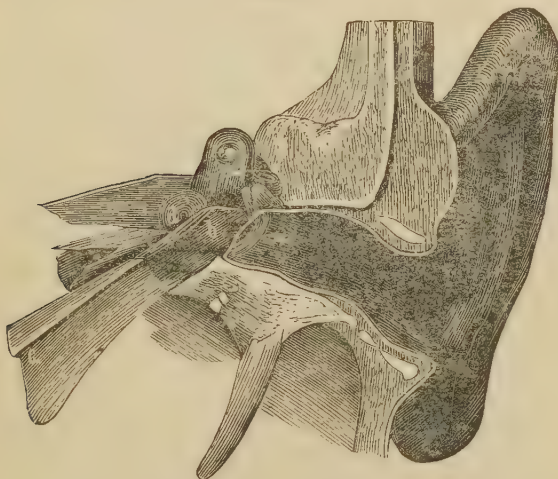
same muscles, few of us can move our ears. The more prominent this outer ear, the better is the hearing, as is shown by placing the half-closed hand behind it, and so collecting, to a still further degree, the vibrations of the air. Those whose ears are nearly flattened to the side of the head, do not hear so well as others; as the size and form of the outer ear varies, the sense of hearing varies also.

From the outer ear there is a tube or canal, the *auditory canal* before mentioned, leading to the middle ear. At the bottom is a tightly-stretched membrane, which makes the outer wall of the middle ear, or the head of the drum. The auditory canal is about an inch and a quarter long, and slightly curved upon itself, so as to be higher in the center than at either end. It carries in, just as an ear-trumpet does, the waves or undulations of the air, collected by the outer ear, to the middle ear. The hairs at the entrance of this canal, and the wax which keeps it soft, are for the purpose of excluding dust, insects and other substances. The wax sometimes gets hard, and increases to such an extent as to cause noises in the ear, and partial or entire deafness. In such cases it may be removed by gently throwing up, from a syringe, warm water with a little soap in it. Children frequently fall into the habit of picking the ear with the finger, thus irritating it, and exciting inflammation and running. Many adults, also, cannot let their ears alone, but are constantly thrusting toothpicks, pins and needles into them, to clean them out. This habit often leads to permanent injury, and not unfrequently, by an accident, punctures the drum of the ear, and destroys the hearing. The practice which some people have of stopping up this tube with pieces of wool, "to keep out the cold," is absurd and hurtful; absurd, because if nature intended the ear to be thus shut up, she would have done it herself; hurtful, as it heats the ear, makes it very sensitive and liable to take cold and become inflamed.

Figure 51 shows the surface of a cutting made through the ear. *a.* is the auditory canal, the external tube running from the outer ear to the drum. *b.* is the inner end of the eustachian tube, where it opens into the drum. This tube is from an inch and a half to two inches long, and commences at *c* in the upper part of the throat, at the back and side. It supplies the middle ear with air. When

the throat is inflamed, the opening into this tube may be closed, and the hearing thus impaired. Some persons, by swallowing, can readily force air into it, which is felt to crack in the ear.

Fig. 51.

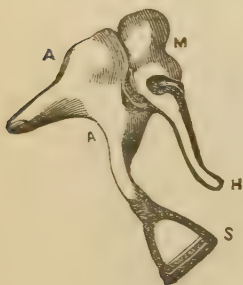


Section of the Ear.

The *middle ear*, the drum or barrel of the ear, is a cavity, about half an inch long by a quarter of an inch high and wide. It lies at the bottom of the auditory canal, from which it is separated by the thin, tightly-drawn, drum membrane, and gets air from the throat by the eustachian tube, just described. This cavity is filled with air, and is traversed by a chain of small, movable bones. These bones are very pretty and curious. They are three in number, called, from their shape, the hammer, the anvil, and the stirrup. The hammer is connected with the head of the drum, the stirrup with the oval membrane separating the middle from the inner ear, and the anvil is placed between the two, to which it is united by very delicate joints. This chain of bones, therefore, carries across the cavity of the drum any vibrations into which the drum-membrane is thrown, by the waves of air coming through the auditory canal, and communicates these vibrations to the inner oval membrane, which, in turn, sets in motion the fluid contained in the

canals of the inner ear. The object of this arrangement we will see directly. The examination of the figure will give a better idea

Fig. 52.

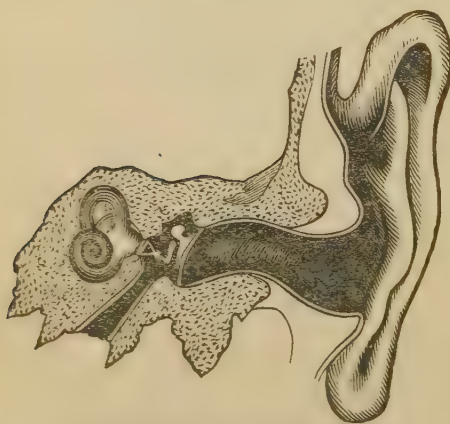


than any description in words, of these little bones. *m* is the hammer, of which *h* is the handle, by which it is attached to the drum membrane. *a* is the anvil and *s* the stirrup.

Their position and action will be made still plainer by Figure 53, which is the face of a cutting through the ear, made so as to show the chain of bones in the drum, and the outlines of the inner ear.

The Little Bones in the Ear. The *inner ear*, or the labyrinth, consists of a series of arched cavities, channeled out in the substance of the bone, shown at the left of Figure 53. It is shut out

Fig. 53.



from the middle ear by an oval membrane, to which is fitted the base of the stirrup bone. This bony labyrinth contains fluid, and within it there is a closed sac, which has the same form as the bony passages in which it is inclosed. The closed sac, which is called the membranous labyrinth, also contains fluid, and

The Outer, Middle and Inner Ear.

within it the fine, thread-like ends of the auditory nerve, or the nerve of hearing, are spread out.

Sounds are propagated by the medium of the air, being produced by waves or undulations in it, like to the circling ripples caused in still water by the throwing in of a stone. That air is the medium

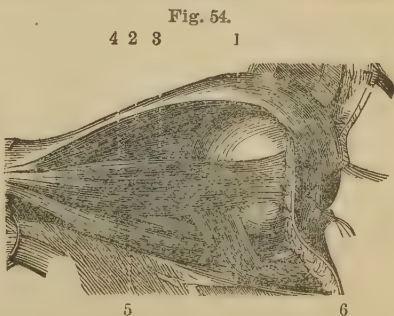
of sound, is established, by the fact that a bell suspended in the receiver of an air-pump, from which the air has been exhausted, gives out no sound, no matter how violently it may be rung; while, if air be forced into the receiver by a condenser, the sound increases, in proportion as the quantity of air is increased.

Knowing now how sound is produced in the air, and how the ear is constructed, we can understand how the appreciation of sound or hearing takes place. The waves of sound strike the external ear, are collected and directed into the auditory canal, where, dashing against the drum membrane, they throw it into vibration. The chain of little bones in the middle ear receives the impulse, and carries it across the drum to the oval membrane, which is thus made to vibrate and communicate the motion to the fluid filling the circular canals and arched passages of the inner ear, and so agitate the delicate filaments of the nerve of hearing floating therein. The nerve so affected transmits, by its peculiar power, the sound to the brain, where "that which seems mere motion in the ear, and in the nerve, turns into joy or sorrow in the soul."

"Hark, how the rolling surge of sound,
Arches and spirals circling round,
Wakes the hushed spirit through thine ear,
With music it is heaven to hear."

Of Seeing. Of all the instruments of sensation, the organ of sight, the eye, is the noblest, the most delicate and refined. It is retained

and moved within its bony socket by the aid of muscles. These muscles are six in number. They are distinctly drawn in Figure 54, and are named from their office: the inner straight muscle (No. 3); the outer straight muscle (No. 4); the upper straight muscle (No. 2); the lower straight muscle (No. 5); the upper oblique; and the lower oblique



The Eyeball and its Muscles.

(No. 6). The broad muscle which lifts the upper eyelid is also shown (No. 1). These four straight muscles are attached to the globe of the eye in such a way that they turn it inward, outward, upward and downward, as their names express. The oblique muscles rotate the eyes. In *cross-eyes*, or squint, one of these straight muscles, usually the inner, is contracted or shortened, and so draws the eye forcibly to that side. Children so affected should be operated on early by a surgeon. The operation consists simply in cutting through the offending muscle, so as to permit the eye to move freely about in its socket.

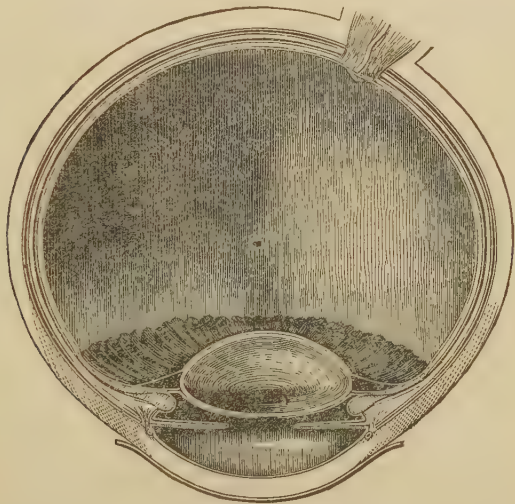
Now that we know the muscles which enable us to turn the eyeball, we will have but a word to say upon the *eyelids*, before considering the internal structure of the eye. The eyelids may be compared to vails or shutters, designed to protect the organ of sight. Their borders, the eyelashes, prevent the entrance of dust and other foreign substances.

The eyeball is, therefore, securely placed in its orbit, where, while protected from injury, it is so situated as to command a wide range of vision, and is freely moved in all directions by its numerous muscles, and shielded in front by its lids and their lashes. The internal structure of the eye, and the manner in which its different parts concur in transmitting the rays of light and the images of objects, next demand our attention.

The interior of the eye is a dark chamber, into which the light enters through a circular transparent membrane, called the *cornea*, fitted like a watch-glass into its front. The cornea is, therefore, the window of the chamber; the rest of its circular wall consists of the *white coat* of the eye, a tough case with holes for nerves and vessels. The inner surface of the wall of this globular chamber is black, to absorb the scattered rays of light. In front of the chamber, a little distance behind the window, or cornea, there is a muscular curtain, called the *iris*, with a hole through its centre, called the *pupil*, which varies in size so as to let in more or less light as the eye wants it, becoming larger when the light is feeble, smaller when it is very bright and strong. The iris curtains off, in this manner, a sort of an antechamber in the front part of the eye. This antechamber is filled with a fluid, called the *watery humor*, in which the iris hangs and

easily plays. Behind the iris is the *lens*, kept in place by a row of dark folds. The rest of the chamber is occupied by a jelly-like mass of a greenish hue, called the *vitreous* or *glassy humor*. These structures are so plainly delineated in Figure 55 that, with the aid of the above description, the drawing explains itself.

Fig. 55.



The Chamber of the Eye.

The vitreous or glassy humor holds out, like a globe, the thin coat, called the *retina*, into which the nerve of sight spreads out when it enters the eyeball, and on the outer layer of which pictures are formed of all we see. The retina of the eye, therefore, resembles a canvas, on which forms and colors are painted, or a screen, on which they are thrown.

It is easy now to trace the course of a ray of light in its passage through the eye to the nerve of sight. The parts just described bend to a *focus* the rays of light coming from an object, and without these parts we could only see things the size of the pupil. The rays of light first pass through the window of the eye, that is to say, the transparent outer structure, called the *cornea*, enter the antechamber, in which hangs the curtain, called the *iris*, pass through

the curtain, by the hole in its centre, called the pupil, and pierce the lens, which is so constructed as to converge the rays of light to a certain point. In passing through the chambers of the eye the rays of light are so bent out of their course by the parts described that the rays from the top of an object cross those from the bottom, so that the retina receives the image of an object upside down, but, with the mind's eye, we see it right.

That structures so delicate as those which make up the eye should be sometimes defective in their action, will not excite surprise. Two defects, in particular, are quite common, namely, *short sight* and *long sight*. Most persons see objects, as, for instance, the type of this page, in the most perfect degree at a distance of about sixteen inches from the eye. The short-sighted hold their books nearer than this, sometimes very close to the eye, while the long-sighted hold them two feet or more away. These defects are occasioned by the quantity of water in the antechamber of the eye; thus, in the short-sighted, the cornea is observed to be too round or bulging, while, in the long-sighted, it is too flat. Naturally, in youth, the eye is fuller than in middle life and in old age, so that the tendency of the young is to short sight, that of the old to long sight. It is a fact deserving attention that the number of short-sighted children and of far-sighted adults is increasing. Parents should know the causes of short sight, and take care that their children are not exposed to them. It is very frequently developed by the habit of holding books and other objects unnecessarily close to the eyes, or bending down the head very near to them. Therefore, small print, bad ink and paper, delicate drawing, fine needle-work, imperfectly lighted rooms, high seats and low desks or tables, are to be avoided, as leading to the habit in question.

Those who are short-sighted would do well to observe certain simple rules for the preservation of their sight. They should naturally choose books with large type, and hold the book up to the eyes, not the eyes down to the book. Bending over a flat table in writing must be avoided by the use of a high desk. No close nor fatiguing work should be undertaken, and the eyes must never be overtaken by too continuous labor, but relieved by frequent rests. In regard to the use of spectacles, those who are only slightly affected may

usually dispense with them, but those who are affected to a considerable degree will find safety as well as advantage in their use. In no case, however, must too strong glasses be employed, as they are injurious. The short-sighted need feel no alarm, unless the trouble is evidently increasing from year to year, when rest, and, perhaps, treatment, become imperative.

Old sight is different from long sight. Old people do not see better in the distance than young; they are merely unable to see so well objects close at hand. This impairment of vision sometimes begins at the early age of thirty-five, without attracting notice; ten years after, the book is held, instinctively, several inches further from the eyes than in youth. The impairment gradually increases with advancing years, until at last the book has to be held so far that the letters can no longer be distinguished, and all reading without glasses becomes impossible. This defect is remedied by spectacles, which have to be made stronger and stronger with invading years. When the glasses habitually employed have to be put at a distance, and kept on the tip of the nose in order to render them of service, stronger ones should at once be obtained, and the eyes not fatigued by attempting to make the old ones do. The glasses should be sufficiently strong to permit of the book or newspaper being held within a foot of the eye.

Weak eyes frequently result from reading, drawing or sewing, in a light either too bright or too dim. The full glare of the sun and twilight are equally injurious. The practice of reading in bed, or when lying on a lounge, is also often a cause of weak eyes. It is better, therefore, always to sit up to read.

VI. THE BRAIN AND NERVES.

The muscles, the organs, and the other parts of the body which have occupied us thus far, are acted upon and ruled over by the nerves, the servants of the brain. The nerves not only excite, but control and regulate all the actions of the body.

The nervous system consists of three great parts, the brain, the spinal cord, and the nerves. Our noblest part, the brain, is situated within the skull. By it we feel and will, think and remember.

The spinal cord is a long, nervous, cord-like mass, about the thickness of a finger, extending from the brain to the base of the spinal column, the cavity of which it occupies, constituting what is called, in common language, the spinal marrow. It gives off thirty-one pairs (one nerve for each side) of nerves; eight in the neck, twelve in the back, five in the loins, and six in the haunches. These nerves arise by two roots from the cord—a back one, which brings feeling to the cord, and a front one, which carries orders to the muscles. As these roots unite together, they thus spread over the whole of the body the powers of sensation and motion. The brain gives off nine pairs of nerves, among which are the nerves of the sense of smell, of sight, of hearing and of taste.

Fig. 56.



Figure 56 shows the brain, the spinal cord, and the manner in which the nerves branch off from them.

These thirty-one pairs of spinal nerves go to the muscles and coverings of the neck, trunk, and extremities, and impart to them the power of feeling and the power of motion. This transmission of feeling and of motion through the nerves is effected in a very beautiful manner. Each spinal nerve, as we have just mentioned, arises from the spinal cord by two slender threads or roots. The *back* root conveys sensation or feeling to the cord, while over the *front* root passes the impulse of motion. Each of these front and back roots extends up along the spinal cord to the brain, on the one hand, and, on the other hand, is continued along the nerve of which it makes a part, throughout its whole course. When we touch anything, the impression produced on the skin is

The Brain, Spinal Cord, and Nerves.

conveyed along that slender thread of the nerve which carries

feeling, and the back root of the nerve, to the spinal cord, and thence upward along its prolongation in the spinal cord to the brain, where it causes a sensation corresponding in character to the impression made. In this manner we feel or have the power of sensation. When, on the contrary, we desire to move a muscle, the impulse of motion which we originate in our brain passes down the spinal cord, along the continuation of the front root of the spinal nerve, and over the front root and its prolongation in the nerve and branches, until the muscle to which the message is sent is reached. In this manner we move our muscles, or have the power of producing motion. We see, therefore, that each nerve is made up of two very different fibres, one conveying sensation and the other motion; that these fibres separate at the spinal cord, constituting the front and back roots of the nerve; and that they are prolonged up through the spinal cord to the brain, putting it thus in telegraphic communication with every part of the body, for the receipt and transmission of messages. It is easy now to understand why it is that, when, by accident or disease, the spinal cord is severed or destroyed at one spot, all motion and sensation in the parts of the body below that spot cease, and that paralysis and insensibility are the necessary consequence of the cutting off of the communication of these parts with the brain, the great seat of sensation and motion.

It is by and in the brain that we feel; it is there that all impressions made upon our bodies are converted into conscious sensations. These sensations are, in a condition of health, at once referred to their proper source, so that we *seem* to feel in the part affected. When, for instance, the finger is pricked, it is the brain which feels the pain and not the finger. That the brain is the seat of sensation is shown by the fact that if the nerves connecting it with any part be cut, that part cannot be made to feel or suffer.

Not only is the brain the seat of feeling, but of all voluntary motion. Every time we designedly move a muscle, we do it by a mental effort, that is to say, by an act of the will. In speaking of the muscles of the body, in the first chapter of this book, we said that the muscles are of two kinds, voluntary and involuntary, and that those which perform actions which require to be unremittingly

kept up to sustain life, such, for instance, as breathing and the beating of the heart, are fortunately independent of our minds. These involuntary actions are carried on through the spinal cord. There is, therefore, no mind in them, otherwise death would soon result. All the involuntary actions of the body devolving upon the spinal cord, which keeps them up without consciousness or effort on our part, the mind is left free for the higher life of thought, and feeling, and design. Even voluntary actions, when habitual, soon need so little attention that they cease to occupy much of our thoughts. Thus we hold ourselves erect, walk and talk, without a conscious effort, although the numerous muscles concerned in these very complicated and difficult acts are all worked by the will. Thus, also, the hand of the practiced workman or the skillful artist glides over his work almost unconsciously, while the beginner bungles, in spite of the closest attention.

From the above sketch of the nervous system, it will be seen in what intimate relations the brain is kept, by the nerves, with external objects. Hence the supply of wholesome impressions through the special senses, the lungs and the skin, largely contributes to mental health. Fresh air and pure water are not only useful to the lungs, and skin, and blood, but directly to the nervous system, which they tone up. Pleasant sights and sounds are excellent mental tonics. Everything that brings happiness is a cordial to the brain and nerves. These are elementary principles in mental hygiene which all should know and heed.





PART II.

SICKNESS IN ADULT LIFE.

THE DIVISIONS OF THIS PART.

Thus far we have been occupied with the structure and action of the body. The ailments of the body, their prevention and treatment, now demand our attention. For convenience of arrangement, as well as because of the different nature of the complaints, we shall first take up the ailments of adults and then those of children.

Before entering upon the study of the special maladies to which the body is liable, some general directions on the manner of keeping the chamber, and of caring for the persons of the sick, and upon the use and administration of remedies, are necessary. Of the four chapters of this part, on *Sickness in Adult Life*, the first, therefore, is devoted to the *Domestic Management of the Sick Room*; the next treats of those Ailments—such as fevers, for instance—which assail the Entire Body; the following discusses those—such as pleurisy, for instance—which attack a Particular Organ or Part; while the concluding chapter is given to Accidents, Injuries, and Emergencies of various kinds.



CHAPTER III.

THE DOMESTIC MANAGEMENT OF THE SICK ROOM.

Choice of the Sick Room—Its furniture—Air and ventilation—Hints in regard to its warmth—How it should be lighted—The importance of cleanliness—Duties and deportment of those nursing the sick—Personal attentions required by the sick—Management of those recovering from sickness—Household remedies—Family thermometry.

Choice of the Sick Room. The room in which a person is confined to bed with a serious and protracted ailment should be large, lofty, and well ventilated; the window sashes ought to lower from the top as well as raise from below, and work with as little noise as possible. Walls painted in oil are better than those in plaster or paper. The door must be noiseless, with a ventilator over it or made in one of the pannels. A painted or polished floor is better than a carpeted one. It should be swept, or at the most lightly wiped, but not frequently washed, as the slow evaporation from the wet boards renders the room injuriously damp.

The room should be a light one, exposed to the direct rays of the morning and mid-day sun. Blinds and shades should be provided, for modifying the light when desirable.

Warmth of the Sick Room. As we have said, a thermometer should always be in the invalid's room, and by it the temperature must be regulated. The best temperature is that of 60° . If, however, the patient feels chilly at this temperature, it may be raised three or four degrees. In fevers and diseases of the nervous system a lower temperature is preferable, about 50° ; while in consumption and other affections of the chest an atmosphere of 65° is the most agreeable to the inflamed air-passages.

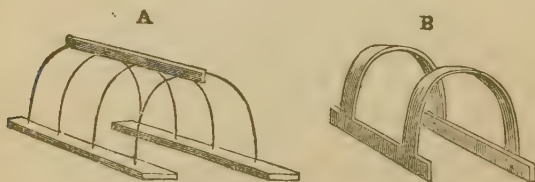
In the early morning hours a sick person is apt to be chilly, which is just the time when the room is usually the coolest—a fact that must be borne in mind, and precautions taken, lest the patient suffer serious injury from this cause.

A low-down grate is much the best way of warming the sick room.

Furniture of the Sick Room. All unnecessary furniture must be banished from the room. There is no need of any wardrobe, bureau, trunks or handboxes. Two *tables*, at least, are wanted; one of them should be small, and on casters, so as to roll easily to the side of the bed, for the immediate use of the patient; the other, a larger one, for the reception of medicine bottles, spare glasses, cups, spoons, and other articles in constant use. In the drawer of the latter table there should be constantly kept a sponge, a bundle of soft old linen, a pair of large, and another of small scissors, a full pin-cushion, needles and thread, a piece of adhesive plaster, and one of isinglass plaster, and oiled silk for covering poultices. A third table, if there be room for it, is useful as a dressing table, on which to place the brush, comb, and other toilet articles. Over it a looking glass may be hung, but never in such a position as to permit of the invalid seeing himself in it as he lies in bed. A movable *washstand*, on casters, so that it can be readily shoved to the side of the bed, is very useful. An ample supply of clean towels should be constantly on hand. There ought not to be more than three *chairs*, of which one should, if possible, be an easy or reclining chair. A *lounge* or *sofa* is of great utility, particularly during recovery, when the sitting posture cannot be long maintained; it is of service, also, for the patient to recline upon, when his strength permits, while his bed is being made. The *bedstead* should not be too wide. A greater width than three and a half feet renders it often difficult to reach and move the patient. Two bedsteads are much better than one. Each should be provided with its own sheets and cover. The patient passing half the time in one, permits the entire bedding of the other to be thoroughly aired out of the room, a very important measure in prolonged illness. The bedstead must be low, so as to permit of the patient getting in and out easily, and of his being lifted and moved with facility. Iron

bedsteads are much to be preferred to wooden ones. The bed should be without curtains, and placed with its head to the wall, so as to admit of access on each side. It is best placed between two windows, or at the side of a window. The *bed clothing* must be light. Heavy cotton counterpanes and Marseilles coverlets must be discarded from the sick bed, and only good light blankets employed. The pillow-cases and sheets are better of cotton than of linen, and should be frequently changed; daily, in the case of infectious fevers. The pillows must be firm and elastic, and arranged so as to support the back, and not piled up in such a manner as to thrust the head forward upon the chest, and so increase the difficulty of breathing. The bed should be level, and not too hard. *Curtains* and heavy drapery of all description are objectionable in a sick room, as they harbor dust and contagious matter. Besides these main pieces of furniture, there are a number of articles of use in every sick room. Among these we may mention the following, viz.: a *thermometer* (one so constructed that it can be put in water to get the heat of a bath) should hang on the wall, at the height of the bed; a *foot warmer*, which may be made of a common bottle filled with hot water, or of a rubber bottle or cushion, or an earthenware bottle sold for the purpose, should be at hand when wanted; a *stomach warmer*, made of an India-rubber bottle or bag filled with hot water, is often of use; *air and water cushions*, or a cushion in the shape of a ring, filled with bran, are serviceable in warding off

Fig. 57.



Supporting Cradle.

pressure from prominent parts, giving support, etc.; a *pillow rest*, made of a bag of the same width, but twice the length, of a pillow case, stuffed with hay, straw or oat-chaff, in such a manner as to make it taper down like a writing desk, from back to front, is an

excellent thing for propping up pillows ; a *cradle*, such as is represented in Fig. 57, to support the bed-clothes, and prevent them pressing upon a painful part, is useful in many ailments ; *folding rests for the legs*, made in the shape of an open book, and covered by a blanket, give comfort to the weary limbs ; a *medicine glass*, marked so as to measure exactly a teaspoonful, a dessertspoonful, and a tablespoonful, enables medicine to be given with much greater exactitude than can be done with spoons, which vary in size ; a *medicine spoon*, which can be obtained at most druggists', permits of medicines being administered to very weak and partially unconscious patients, as it is covered, and has an opening near the end, so as to avoid all spilling ; a *feeder*, consisting of a half-covered vessel furnished with a spout, for giving soups, teas, and other fluids, is convenient for administering drinks to the patient when lying in bed ; a *bed-side pocket*, to be pinned at the side of the bed, makes a convenient place for keeping the pocket handkerchief, a bottle of scent, etc., within the reach of the invalid ; a *sick tray*, consisting of a board hollowed out in front to fit the body, and supported on four short legs, to be placed on the bed before the patient, is often much more convenient than an ordinary waiter on the knees or a table at the side of the bed ; a *bed-chair* is often of service ; a *bed-pan*, or *slipper*, is necessary for those too weak to rise from the bed ; two *baskets*, with divisions or compartments, are useful for medicine bottles, one containing medicines for internal use, the other, of another color and form, containing external applications ; and two baskets for cups and dishes, one for those needing washing, which are to be quickly sent out of the room and exchanged for the other basket with its clean ware. The following articles must *not* be kept in the sick room, viz. : dirty linen, implements of cooking, prepared food, medicines discontinued by the physician, soiled cups or glasses, slop basins or pails.

Air of the Sick Room. Fortunately the prejudice against admitting fresh pure air into the chambers of the sick, particularly of fever patients, is to a great extent a thing of the past. The custom of almost hermetically sealing the rooms of patients in fever was very prevalent among nearly all classes, some forty or fifty years ago. Dr. James Gregory, of Edinburgh, the celebrated pro-

fessor of medicine used to mention in his lectures, that as no argument was of avail in procuring the admission of fresh air into the sick rooms of the poor, he generally pushed his cane through the panes of the windows. This, however, was not always adequate to insure the intended effect, as he often found the broken panes pasted over with paper on his next visit. No such forcible measures are now, usually, required. People generally err from carelessness rather than ignorance or prejudice, as few can be unaware of the fact, the subject having been so widely discussed, that foul air is poisonous for sick and well. In many cases, it is useful, once or twice a day, to cover the patient well in bed and protect him from drafts, and then open wide all the doors and windows, so as to wash out the room with fresh air. An excellent test for foul air is the nose; pure air is tasteless and free from all smell.

The air of the room should never be permitted to become too dry, as is the tendency in heated rooms in winter. A basin of boiling water occasionally brought into the room, and replaced by another when it becomes cold, will usually give sufficient moisture.

A constant supply of pure air is important for others in the sick chamber as well as for the patient, as it lessens their chance of contracting the disease. The confinement of a contagious principle in a close room increases its force; the more poisonous emanations are diluted by admixture with fresh air the less dangerous they become. Hence certain diseases are more frequently propagated in winter, when doors and windows are kept shut, than in summer, when the outside air is freely admitted.

While keeping the air that the sick breathe fresh and pure, by ventilation, care must be taken not to chill the patient. There is little danger, however, with ordinary precautions, of taking cold when lying in bed. Sick people usually catch their colds by rising for a moment from a warm bed without throwing any wrap around them, or by sitting up in bed without a covering over the shoulders.

Of course, no air is pure which contains smoke from a badly-made fire, or from the chimney of an oil lamp. Not only smoke, but gas, frequently escapes from a stove, and proves a source of trouble to the sick, particularly those affected with chest ailments.

Of all the sources of contamination of the air of the sick chamber,

one of the worst is the chamber utensil. On this subject, FLORENCE NIGHTINGALE, with her usual good sense and thoroughness, writes: "The use of any chamber utensil *without a lid* should be utterly abolished, whether among sick or well. You can easily convince yourself of the necessity of this absolute rule, by taking one with a lid, and examining the under side of that lid. It will be found always covered, whenever the utensil is not empty, by condensed offensive moisture. Where does that go when there is no lid? But never, never should the possession of this indispensable lid confirm you in the abominable practice of letting the chamber utensil remain in a patient's room *unemptied*, except once in twenty-four hours. Yes, impossible as it may appear, I have known the best and most attentive nurses guilty of this. Earthenware, or if there is any wood, highly polished and varnished wood, are the only materials fit for patient's utensils. A slop pail should never be brought into a sick room. It should be a rule invariable, that the utensil should be carried directly to the water-closet, emptied there, rinsed there, and brought back. There should always be water and a cock in every water-closet, for rinsing. But even if there is not, you must carry water there to rinse with. I have actually seen, in the private sick room, the utensils emptied into the foot pan, and put back under the bed. I can hardly say which is most abominable, whether to do this or to rinse the utensil *in* the sick room. In the best hospitals, it is now a rule that no slop-pail shall ever be brought into the wards, but that the utensils shall be carried direct, to be emptied and rinsed at the proper place. I would it were so in the private house."

In typhoid fever, dysentery, and other similar affections, in which the infectious principle of the disease resides in the discharges, the chamber utensil, so soon as it is cleaned, which should be at once after use, should have poured into it about half a tumblerful of a strong solution of sulphate of iron, kept on hand for the purpose in a large bottle or jug, and made by dissolving a pound of copperas in a gallon of water. Directly after the vessel is used, and before its contents are emptied, about a tumblerful of the same solution should be poured in, to destroy the fetor and lessen the liability of infection.

Light of the Sick Room. The sick require plenty of light as well as an abundance of air. It is only in the beginning and violent stages of certain diseases, and in some nervous affections, that it is advisable to partially darken the room.

It is a fact in regard to which there can be no doubt, that the sick do better and recover more quickly in a sunlit room, than in one into which its rays cannot enter, or from which they are always excluded. An agreeable view from the window is also desirable, especially during convalescence, to relieve the tired eye, and gratify the craving, nearly always experienced, for looking out of the window.

The night light must be so placed as not to throw a shadow on the ceiling over the patient, or on the wall in front of him. Shadows of things or persons in the room often assume, to the fearful gaze of the weakened patient, forms of terror, and may excite delirium or even convulsions. If oil be burned, care must be taken that the lamp does not smoke nor smell; if gas, that the gas does not escape.

Cleanliness of the Sick Room. Cleanliness and order are important in the chamber in which the sick lie, but the dust and noise made in sweeping and arranging the room are frequently a source of great annoyance to the silent sufferer. As after a night's rest the patient is best able to bear a little bustle, the morning should be selected for putting the room to rights. If there be a carpet on the floor, it is to be sprinkled with moist tea-leaves before being lightly swept with a hand-brush and dust-pan.

The furniture, the bed and bedding, the floor and walls, and every article in the sick room, should be always clean. No vessel or implement used by the patient should be suffered to remain in the apartment, but be at once taken out, to be returned so soon as cleaned. Every glass, cup or plate in which food is administered, must be taken immediately out of the room and washed. Neither ought any glass or spoon in which medicine is given be suffered to remain with the small portion which is always left in it; it must be instantly and well cleansed.

Duties and Deportment of those Nursing the Sick. Those women make the best nurses for the sick who are between the ages of twenty-five and fifty-five, active and vigorous, in good health,

of happy, cheerful disposition, with kind feelings, and a temper not easily ruffled, and of orderly, clean and neat habits.

The nurse should cook nothing in the sick room; move about without noise, fidget, hurry or bustle; keep the room in order, sweet and clean; take out of the room instantly all evacuations of the patient, slops, soiled linen and wet towels; avoid eating anything that gives a bad smell to the breath; order food so as to have it ready promptly at the time for giving it; observe minutely the orders received for administering food and medicine; see that the patient's mouth and nostrils remain uncovered during sleep; never express a doubt in regard to the propriety or efficacy of the treatment employed; always look confidently for recovery; make no comparisons with other cases; say nothing to discourage or alarm the invalid; never whisper; give no prohibited food, and permit of no forbidden indulgences; see that there is a supply of fresh air, and that the patient is kept out of all drafts; preserve a proper uniform temperature, by means of the thermometer.

She should also keep in writing, jotting down at the moment, the exact time, by the watch, of all the important events of the day, such as the taking of food and medicine, the coming on of sleep, or delirium, or restlessness, the dejections of the patient, any remarkable change in the symptoms, and other matters of interest bearing upon the progress of the ailment and the condition of the patient. Fortunate is he who has a wife, daughter, mother or sister who can fulfill these requirements, and sensible is the woman who tries to fit herself, by thought, reading and observation, to take care, in a proper manner, of those dear to her, in their hours of pain and weakness, under the shadow of death.

The dress of the attendant on the sick is deserving of attention. It should be neat and clean, of a soft, warm color, and of a material which will wash. Black is always nasty to the delicate sense of smell of the sick. A dress that rustles must never be worn in the sick room. Creaking shoes or slippers are, of course, improper. In many cases of illness, particularly if the room be not carpeted, it is well to have a pair of large loose slippers outside the door, to be slipped on over their shoes, by those entering, not excepting the doctor.

Personal Attention Required by the Sick. When there is a tendency, which exists in many diseases, to coolness of the surface of the body, heat should be kept up by means of hot water bottles, warm bricks, or tin cans filled with hot water, etc., applied externally.

The *skin* of the patient must be kept clean by sponging with tepid water, to which a little whisky or vinegar may be added. Care must be taken while thus cleansing the skin, not to expose the person to a draft, and not to uncover more of the body than is necessary at one time. This sponging of the entire person may be repeated, in most cases with advantage, every day. In any event, the patient's face and hands should be washed every morning, and the feet at least twice a week. Recovery is retarded in cases in which the disease is assisted by the presence of dirt.

The *bed* should be tidied and put straight every day, and the sheet upon which the patient lies should be kept smooth and free from crumbs.

The *body linen* must be changed at least once a week, in most cases oftener. The following rules in regard to changing are useful:—

1. Do not begin to change until *all* that is likely to be needed is *ready*.
2. See that there is no draft from an open window or door.
3. Have the fresh linen well aired and warmed beforehand.
4. Avoid moving or uncovering the patient more than is absolutely necessary.
5. Do not call upon the patient for too much help.

Delirious patients must, of course, never be roughly dealt with, neither must they be argued with or contradicted in their assertions. It is best to appear interested in their conversation, while watching over and controlling with gentleness but firmness all their actions likely to do them injury. Such patients should never be left alone, nor should one person be in attendance without being able to call for immediate assistance at a moment's notice.

For rules in regard to cooking for the sick, and for special receipts for the invalid's table, see Chapter IX, commencing on page 320.

For directions in regard to giving baths, and applying blisters, cups, leeches, poultices, etc., see Chapter X, page 332.

Management of those Recovering from Sickness. Quiet and rest are essential in every recovery from sickness. The mind as well as the body demands repose after suffering. Any prolonged or violent exertion or mental excitement is, for a long time after recovery has set in, injurious, and may occasion a relapse.

After every illness, as soon as the invalid becomes strong enough, a change of air and scene is of the utmost service. To those living in the city, a visit to the country is especially useful. The sick must not, however, be deprived of home care and comforts too soon. A journey, however short, is always fatiguing to the feeble, and a removal to a new abode, always a source of excitement and some discomfort to those not long from a bed of sickness. When the proper time arrives, the return of health is greatly facilitated by a judicious change of residence for a while.

Household Remedies. The articles which are used to restore the sick to health are often and conveniently divided into "household remedies" and "drugs." By the former, those articles are understood which are found in every grocery store and household, which are bought and kept for use in health, but possess medical properties, sometimes very valuable ones. Such, for example, are salt, mustard, vinegar, oil, spices, ginger, etc. An acquaintance with their virtues as medicines, and their proper use in curing disease, is an acquisition which every one ought to make. Often such simple articles answer the purpose much better, with more promptness, and at less cost, than the more unknown products of the apothecary shop.

In the latter, the numerous bottles and drawers, with their labels in large letters, presenting strange words and mysterious abbreviations, bewilder the ordinary visitor. He is deeply impressed with the difficulties in the study of physic; and the danger of meddling with what he knows is often poisonous is present to his mind. These sentiments are just, for many of these drugs are dangerous, others are rare and costly, others difficult to prepare and administer. It is not wise for any one who has not seriously studied medicine to

tamper with them, and hence, in such a manual of domestic practice as this, it would be inexcusable to recommend them.

Fortunately, it is not necessary. Although there are so many hundred drugs in every pharmacy, their multiplication is a matter of trade rather than necessity. The most learned and successful physicians do not use very many remedies. Probably the essential parts of a hundred prescriptions from their hands would, in ninety cases, be found in less than ten different drugs.

We propose, in this work, to take advantage of the same principle of selection, and shall make the reader familiar with a limited number of drugs of wide application, and which have the further advantages of being not costly, not dangerous, and of decided virtues. They can be used in many different complaints, and in the forms which we shall recommend are peculiarly suitable for those to use who have not studied the details of the druggist's trade and the physician's calling. They will be often referred to, and when they are once provided in the family, we shall endeavor to render them sufficient for the treatment of nearly all ordinary diseases, supplemented, as we shall presume them to be, with those "household remedies" to which we have already referred.

It would be advisable, therefore, for every one who intends to make practical use of this book to obtain these remedies, a list of which we shall presently give. They should be carefully put up and kept in a locked chest or box, where children cannot get at them. All the articles can be had of any druggist, though, as some of them are often adulterated, and others spoil if kept too long, care should be exercised in their purchase and preservation.

Sometimes, when several drugs are mingled, they act differently and more successfully than either of them (or any other substance) when taken alone. This is why, in most prescriptions or recipes, one sees three or four or more articles mentioned. Another advantage, and a very great one in children and delicate persons, is that it gives the chance to conceal the taste of a disagreeable drug, and often to render it quite palatable.

Many of these firms keep on hand medicine chests containing a select assortment of such drugs as are most commonly used by

emigrants, missionaries, ship-captains, and others remote from apothecary stores.

The number of these offers a wide choice, as not all are selected with reference to the great principles which should govern the selection of medical agents for popular use, which we take to be (1) that they are efficient; (2) that they are not dangerous; (3) that they do not readily spoil by time and change of temperature; (4) that they are not distressingly unpalatable; (5) that they are not too bulky; (6) that they are not very costly. Of the "Family medical chests" which have come under our notice, we like, as well as any, and in some respects better than any, that which has been sold by the "Medical Commission Agency," in Philadelphia (115 South Seventh street). It is called "The Traveler's Medical Kit," and having been carefully selected with a view to the above requirements, may serve as a sample of them. Its contents have been more or less changed, from time to time, as improvements in the manufacture of drugs seemed to suggest. Lists can be obtained from the Agency, giving their prices and contents.

In Part IV of this work a number of selected receipts will be given which will answer the above requirements, and which will be freely referred to under the treatment of diseases. Any of these can be obtained from the apothecary store, and, if used according to directions, will answer a good purpose. A number of them might be prepared and kept on hand ready for use. Others, which will be spoken of, are the following:—

Ammonia, or Hartshorn. The preparations of ammonia which will be referred to are, first, the "aromatic spirits of ammonia," a valuable stimulant, serving in place of alcoholic fluids. The dose of it, for an adult, is twenty drops, in a tablespoonful of water, repeated when necessary. Second, the solution of the acetate of ammonia. A tablespoonful of this, in a wineglass of water, is the quantity for an adult. It acts on the skin and kidney, and is very cooling in fevers, and similar conditions.

Bromides. These are the bromide of potassium or of sodium. They are given to allay pain and nervousness, in doses of 20 or 30 grains.

Iodine. Tincture of Iodine, which is iodine dissolved in alcohol, is frequently used as an external application, to cause gentle counter-irritation, and remove swollen glands, chilblains, stiffness of joints, slow rheumatism, etc. The *iodide of potassium*, dose ten grains, and *syrup of iodide of iron*, dose half a teaspoonful, are very valuable "alteratives," that is, they "alter" the general conditions of the body.

Opium, one grain of which is an adult's dose, is generally given as *laudanum*, which is opium dissolved in alcohol, one grain in twenty drops; or *morphia*, which is a chemical extract of opium, one quarter of a grain of which equals one grain of opium; or *paregoric*, which contains one grain of opium to an ounce; or as *Dover's powder*, which has one grain of opium in each ten. All these must be used with caution.

A *Thermometer* is useful, not only to maintain the air of a sick room at a proper temperature, and to test the heat of warm baths, foot baths, and the like, but in the hands of a judicious person, is a great aid in deciding the severity of a case of disease, by ascertaining the temperature of the patient. For this purpose, the instrument is so made that its bulb can be placed under the tongue or in the arm-pit. Hold it there three or four minutes, and you have the temperature of the skin and blood of the patient. This should not be above 99°, nor below 97°. Any material variation from these limits indicates danger, although the symptoms in other respects do not appear threatening. "Family Thermometers" have been devised, with a zero, showing the animal heat in health, so that any deviation from it is perceptible by the most inexperienced hand.





CHAPTER IV.

AILMENTS AFFECTING THE WHOLE BODY.

Ailments attended with Fever as the Prominent Symptom:— Typhoid Fever—Typhus Fever—Bilious Remittent Fever—Chills and Fever—Break Bone Fever—Catarrhal Fever—Yellow Fever—Small Pox—Milk Sickness. *Ailments attended with Pain as the Prominent Symptom:—* Neuralgia—Headache—Rheumatism—Gout—Lockjaw. *Ailments attended with Sleeplessness as the Prominent Symptom:—* Wakefulness—Delirium Tremens. *Ailments attended with Wasting as the Prominent Symptom:—* Starvation—Scrofula—Poverty of the Blood—Night Sweats—Dropsy. *Ailments attended with Insensibility as the Prominent Symptom:—* Fainting—Apoplexy. *Ailments attended with Fits as the Prominent Symptom:—* Falling Sickness—Hysterics—St. Vitus' Dance.

I. AILMENTS ATTENDED WITH FEVER AS THE PROMINENT SYMPTOM.

Typhoid Fever. This disease is frequently spoken of as slow nervous fever, and sometimes as common continued fever. It also bears the names of putrid fever, autumnal or fall fever, and night-soil fever.

How Brought On. Exposure to foul air, as that of sewers, water-closets, privy-wells, etc., is one of the most powerful causes of typhoid fever. Depressing influences, such as anxiety, home sickness, great fatigue, seem to occasion it in some instances. The discharges of the patient may, if not disinfected, impart the disease; wells have been contaminated in this way, so that their water has become a source of wide-spread contagion. The *age* at which typhoid fever is most apt to occur is between fifteen and thirty years, rarely before ten, and still more rarely after fifty. The ap-

pearance of the disease does not seem to be influenced by climate or locality.

How Distinguished. Typhoid fever is usually preceded for several days by headache, loss of appetite, prostration of strength and great disinclination to make any physical or mental exertion. Bleeding from the nose is often an early symptom, so also is a slight cough. Increasing weakness and the coming on of fever force the patient to take to his bed. Considerable fever and thirst are then complained of. The nights are wakeful and delirious; the days are passed in dozing and muttering. Soon, towards the close of the first week, the belly swells, and diarrhœa ordinarily sets in about the same time. The face takes on a dull look, and a dark purple flush. Hardness of hearing is not unusual about the middle of the second week. Towards the close of the second week, a few small rose-colored spots, which are peculiar to the disease, show themselves on the belly; they disappear for a moment when pressed upon by the finger, but quickly return after the pressure is removed.

Recovery may begin at the end of the second week, but ordinarily not before the fourth week, while the attack, in rare cases, lasts two or three months. Great wasting of the body and troublesome bed-sores accompany protracted cases.

The patient gets well very slowly, and is liable, for a long time, to a relapse. About one case in twenty ends fatally, death taking place usually in the neighborhood of the eighteenth or twentieth day.

How Treated. Good nursing is of more consequence than medicine in typhoid fever, as there is no remedy known which will cut the disease short. At the outset, if the bowels are costive, a teaspoonful of castor oil, or half a tumblerful of the effervescing solution of citrate of magnesia (to be obtained of any druggist) may be given; afterwards, however, no purgative is to be ever administered. When the diarrhœa becomes excessive, half a wineglassful of lime water mixed with an equal quantity of milk, is an excellent soothing drink. Headache is best relieved by cutting the hair short and applying iced cloths, or, in severe cases, pounded ice enclosed in a bladder or rubber bag. To allay heat of the skin, sponge the body with slightly warm whisky and water, or vinegar and water, care

being taken to expose only one part at a time to the air. If much pain and tenderness of the bowels be complained of, apply a large hot mush poultice, mixed with one-fourth part of mustard. Great attention must be paid to preventing bed-sores, by keeping the bed-clothes always smooth, by frequently changing the position of the patient, and by bathing the parts most pressed upon with whisky, or with a mixture of spirits of camphor and sweet oil.

The *diet* is of the utmost importance in the treatment of typhoid fever. Neither during the sickness, nor for a long time after recovery, should solid food be given. A neglect of this caution often causes the death of the patient, by occasioning a rupture of the sore places which always exist in the bowels in this disease. Although fluid, the diet must be supporting. The quantity given at a time must be small, not much more than a wineglassful, so as not to distend the stomach, but it is to be repeated frequently, every hour or two. An excellent diet is a wineglassful of milk, to which a tablespoonful of lime water is added, given every two hours; in the alternate hours, a wineglassful of beef tea. Receipts for making beef tea will be found on page 326. Great care must be taken not to let the patient sink, from the want of frequently repeated concentrated liquid food. Iced lemonade or ice water may be taken to quench the thirst, but not more than a wineglassful at one time.

As to medicines, few are required. A laxative may be given at the outset of the disease, as already mentioned. For a tonic, quinine is excellent. Few cases are treated without it at the present day. A good way of administering it is to procure it in powders, of two grains each, from the druggist, and give one of these three times a day, in a spoon, surrounded with scraped apple, which will disguise the bitter taste.

How Prevented. Foul air and water, being the great causes of typhoid fever, must be avoided. Hence, close, badly ventilated rooms, houses the air of which is vitiated by gases from the sewer entering through imperfect water closets, or by emanations from a privy well, or from decaying vegetables or timber, or by the foul odor from pools of waste water or drains, or masses of filth near by, and wells of drinking water contaminated by the neighborhood of pig-sties, sink drains, and human excrement, are all sources of

danger which must be guarded against. It is asserted, also, that cast iron stoves, and the hurtful gas which they throw off when heated, are answerable for many cases of typhoid fever. Whatever lowers the general health and depresses the tone of the nervous system, predisposes to the disease.

Typhus Fever. This disease is also known as ship fever, camp fever, jail fever, putrid fever, petechial fever, spotted fever, hospital fever, brain fever, bilious fever, and low fever, etc.

How Brought On. This form of disease, which is essentially a disease of the blood, is brought on by the absorption of what is known as "crowd poison," which is developed by the exhalations from the bodies of many persons congregated together in badly ventilated or filthy houses, jails, ships, camps or hospitals. This disease prevails almost entirely during the colder portions of the year. This is due to the want of thorough ventilation, apt to occur in the effort to avoid the cold. It is also extremely liable to prevail under all circumstances of privation and misery. It is a contagious disease, though very many who are exposed to it do not contract the disease.

How Distinguished. For a few days prior to the full development of the disease premonitory symptoms are observed. There are loss of appetite, headache, general weakness or indisposition to exertion. The patient then has a chill. Sometimes this is hardly noticed, except as a slight feeling of chilliness, or it may be so severe as, in rare cases, to cause the death of the patient before he can react. This is soon followed by fever, accompanied with a rapid, weak pulse, harsh, burning skin, violent pain in the head, constipation of the bowels, the tongue covered with a whitish or yellowish coat. The hearing soon becomes dull, or even deafness ensues; the mind wanders, particularly at night; the face becomes of a dusky hue. This train of symptoms continues, generally growing more profound, the patient lying in a stupor, with more or less muttering delirium, but from which he can generally be aroused, though speedily relapsing. When this stupor or coma becomes very pronounced, it is regarded as a very unfavorable sign. The urine is allowed to accumulate, and in some cases it is completely suppressed. The tongue, which is protruded with difficulty,

gradually grows darker, even of a blackish hue; hence, the disease is sometimes called black tongue fever, or black tongue typhus. As this organ becomes dryer, cracks or fissures occur in it, while it and the teeth are covered with an accumulation known as sordes. The constipation generally continues throughout the attack, and the bowels are difficult to move. From the fifth to the seventh day the characteristic eruption makes its appearance, although in a small minority of cases it is never present. It consists in a rash of small, red pimples, on the chest, abdomen and extremities, usually appearing in the order named; first on the chest, then on the abdomen, etc. They are of a mulberry, or measles-like color. At first these will almost entirely disappear under pressure, and return as the pressure is withdrawn. Accompanying these, on careful examination, may be found a number of very small vesicles, known as sudamina. Occasionally, rose-red spots are mingled with the peculiar eruption. The abundance of the characteristic eruption in typhus fever, as a general rule, is a good index of the malignity of the attack. There is generally observed a peculiar odor emanating from the patient, though this cannot be regarded as special to the disease. Bleeding from the nose rarely occurs. As the attack proceeds, the symptoms become more marked; the delirium passes almost completely into stupor, the patient lies upon his back in a state of great prostration, and often the urine dribbles away involuntarily.

The duration of the attack is about three weeks, and hence the tenth and eleventh days generally form the critical period, from which time the decline of the fever and the improvement of the patient may be anticipated. Complications may arise, such as erysipelas; gangrene, from pressure, particularly of the extremities; pneumonia, or inflammation of the lungs, commencing by passive congestion, the result of the position of the patient. It is rare that a relapse occurs. Occasionally, convalescence commences as early as the end of the second week, and may commence suddenly and unexpectedly. Generally, the progress of recovery is marked by no untoward event. With the exception of the loss of the hair, the health of the patient is, as a rule, better than prior to the attack.

The case may be regarded as tending to a favorable termination when the pulse suddenly becomes less frequent and stronger; when the patient begins to exert himself, and turns to one side from the position on the back, or draws up one leg, as is naturally done in health; when the rash is scanty or absent; when the appetite commences to reappear, and the tongue to clean and become moist; and when the face assumes a less dusky hue, and the brain is aroused to a returning intelligence.

The usual average of mortality is about one death in ten cases.

How Treated. As in all forms of severe disease, good nursing is a great essential. As to any method of cutting short, or arresting this fever, there are no reliable means, though, at various times, plans and remedies have been proposed, and even highly lauded, but invariably, a full and careful trial has shown their inefficacy. Perhaps the best thing to commence with is a mild purgative, as it must be remembered that this is a low form of fever, and will not bear any more depletion or weakening of the vital powers. Any of the effervescent draughts, in moderate doses, are suitable, especially as it is desirable to act by cooling the heated condition of the patient.

From the commencement, there are but few cases which do not require, almost from the onset, nourishment in a concentrated form, and stimulants. When the heat of the skin is intense, great amelioration of all the symptoms almost always results from the use of cold water. An excellent plan is to sponge the patient all over, taking care not to make too great an exposure of the surface. Alcohol, or citric acid, or vinegar, may be added to the water with advantage. This should be repeated several times daily, the applications being governed by the results. Thus, if the patient does not feel comfortable after the sponging, but chilliness follows, it should not be repeated. But when the temperature is lessened, and all the symptoms appear to improve, the indications are that the sponging is beneficial, and should be repeated.

Digitalis and veratrum viride both act well to diminish the force and frequency of the pulse, as well as the temperature of the body.

The best results are claimed for, and would appear to follow, the use of the mineral acids, the dilute phosphoric, the sulphuric, the

hydrochloric, the nitro-muriatic, or the nitric. Of the first, ten to fifteen drops are given every hour, or every two hours. As a general rule, large doses do not seem requisite, but the acids may be given at sufficiently frequent intervals, largely diluted with water, and with the addition of any pleasant syrup. Few patients fail to appreciate this form of medication, and generally relish it. The oil of turpentine has long been a favorite form of treatment, particularly when the tongue is dry, and the abdomen is swollen by the presence of gas. It is best given in mucilage, say, for an adult, in fifteen to twenty drop doses, repeated every two, three or four hours.

As this is a zymotic disease, or one due to a fermenting poison in the blood, the sulphites have been supposed to be eminently applicable as a curative agent. The carbolic acid also has its advocates, but neither have yet been proven as possessing great value.

Special indications must be observed as the disease progresses. The headache, especially at the onset, claims attention, and may be mitigated, if not entirely relieved, by the application of ice water, vinegar and water, cologne water, alcohol and water, and if necessary, the cold affusion, or bladder filled with crushed ice, may be used, the hair having been closely cut. Sleep is important, and to procure this, recourse may be had to full doses of opiates, or perhaps, what is much better, of chloral. In this connection, it must be remembered, that small doses of narcotics frequently add to the excited condition of the brain, while a full dose at once procures that relief which is so much needed. This, too, aids in relieving the delirium, quieting the incoherent talking, or attempts to leave the bed, and thus prevents the consequent exhaustion so liable to follow. The bromides, particularly of sodium and potassium, may be usefully employed to carry out this indication.

When nausea or vomiting occur, care must be observed that the articles of diet, etc., are given in small quantities. Diarrhoea or dysentery must be checked by astringents and opiates, when these complications appear likely to add to the exhaustion of the patient. As the disease progresses, constipation may be relieved by the use of enemas, or very mild laxatives. Care must always be had lest

urine accumulate in the bladder, and the catheter should be employed whenever there is reason to suspect the presence of an undue quantity. When there are much swelling and tenderness of the abdomen, hot mush and other poultices may be applied, turpentine stupes, and turpentine in the form of enemas, and by the mouth, may be used. Mechanical compression, as a binder applied over the abdomen, often affords great comfort.

Should hemorrhage occur, or sudden, intense pain in the abdomen, marking the occurrence of perforation of the bowels, the situation becomes extremely grave. The utmost quiet must be enjoined. Astringents, as tannic acid, acetate of lead, and the sub-sulphate of iron, in union with opiates, may be employed to check the hemorrhage; and these may be given both by the mouth and by the rectum; opiates and chloral in full doses, to procure relief of the exhausting agony, and to give rest.

The use of alcohol as a supporting measure, and of abundance of fluid, easily digested food, particularly in a highly concentrated form, are essentially necessary, sometimes from the beginning, always after the first few days.

Stimulation must be employed solely with reference to the condition of the patient. The pulse is the best guide. When the pulse becomes fuller, slower, stronger, the stimulation is doing a good work. Under its influence the delirium ceases, the restlessness is checked, the skin grows moist, and every symptom assumes a more favorable aspect. The reverse of these symptoms shows a necessity for a lessened stimulation, or its entire cessation.

As a tonic, quinine, in two-grain doses, three to four times daily, is highly beneficial.

The *diet* should consist solely of liquids, as milk—first and best, eggs, broths, meat essences, etc. These should be given whether desired by the patient or not, and at intervals of two to three hours. Too frequent repetitions are hurtful, by loading the stomach, and not affording time for rest to the patient. The quantity given at once should be determined by the attending circumstances, care being had not to risk the production of nausea and vomiting by the administration of too large quantities. Another point is to see that these articles are alternated, so as not

to tire and disgust the patient by too much sameness, and also, by a want of care in their preparation.

Should the stupor become profound, a blister may be applied to the nape of the neck, extending well up over the occiput; and at the same time, revulsion may be induced by sinapisms to the extremities. To avoid bed sores, etc., and the induction of pneumonia, or congestion of the lungs, the position of the patient should be changed frequently, and the parts properly cleansed. When the lung complication ensues, dry-cups and blisters to the chest are alone admissible.

How Prevented. The causes should be avoided by thorough ventilation, the prevention of overcrowding, and the proper hygienic measures.

Bilious Remittent Fever. This is also called bilious fever, remittent fever, and malarial fever.

How Brought On. Seen most, if not entirely, in spring and fall, and due to malaria arising from marshes, or other stagnant bodies of water, or the draining of mill-dams, ponds, etc., or the turning up of fresh, uncultivated ground, as in new settlements.

How Distinguished. This disease is ushered in by general languor, and depression of spirits, headache, occasional nausea, and coated tongue. Presently a chill occurs; generally not severe, but of an hour or more in duration. These symptoms vary in intensity, and are followed by fever, which is marked by the usual hot, dry skin; the quick, forcible pulse; flushed face; severe, throbbing pain in the head; more or less inability for mental exertion; violent aching pains in the limbs; nausea, and vomiting of bilious matters; constipation; thirst, and quick respiration. In the course of ten to twenty hours, an abatement of all the symptoms occurs, the patient appears to be getting better, sleep occurs, and there is moisture of the skin, or even a copious sweating. Still, his condition does not become quite normal. The pulse remains rather full and frequent, more or less headache, and general pains continue, with thirst, and general uneasiness of the stomach. These symptoms continue for a period varying from eight to twenty-four hours, when the former state is renewed, and every symptom becomes aggravated. The tongue now becomes heavily coated with a yel-

lowish matter, and the stomach is so sensitive as to reject almost every ingesta. When a passage occurs from the bowels, the dejection is loaded with bile, but may be more or less slate-colored. In extreme cases, there are delirium, and great restlessness, and the skin is deeply tinged of a yellow hue. This appearance, however, is present, more or less, in nearly every case.

As the attack progresses, the remissions become more irregular, and less marked, and finally, unless checked, the fever becomes continuous.

The duration of the attack varies, according to its violence, from six days to as many weeks. Occasionally, a complete intermission occurs at the end of the first week, which terminates the disease. It is liable to complication by an attack of inflammation of the lungs, producing pneumonia; of the brain; of the stomach or bowels, when diarrhœa or dysentery follow. As a result of a chronic attack, we may have inflammation of the spleen or liver. Or, particularly in some abnormal constitutions, or under adverse circumstances, as privation or misery, the disease assumes the typhoid form. This may occur from neglect or want of proper treatment, or the epidemic influence of typhoid fever. The symptoms then, more or less nearly, resemble those of typhoid. The pulse becomes high, rapid, 120 to 140 in the minute, and weak; the skin harsh and dry; the face assumes a dusky hue; the bowels may either be obstinately costive, or affected by diarrhœa; delirium and restlessness occur; the tongue is dry and fissured, and covered with dark sordes; the weakness is marked, and may be alarmingly increased by the occurrence of hemorrhages from the stomach, bowels, nose, lungs, etc. Death may at any time close the scene. The critical period is often marked by the occurrence of a copious perspiration, or of a sudden alvine discharge of black, offensive matter, in great abundance.

How Treated. Active and positive medication are imperatively demanded, in order to cut short the attack when possible, and avoid the occurrence of the complications and results so liable to follow. Bleeding may be regarded as proper when the attack occurs in one of a robust nature, where the headache is intense, the pulse bounding and full, and there is every evidence of a plethoric condition.

Generally, however, the fever may be moderated by a free, active purgative, and this should be of a saline character, preceded, if necessary, by blue pill or calomel. Care should be taken when there is nausea, lest these articles increase the trouble, and result in an attack of obstinate vomiting. To meet this indication, an effervescent, as the citrate of magnesia, will mostly act well, or Seidlitz powders, or Epsom salts.

Refrigerant diaphoretics or effervescent draughts may be given, and if the headache is intense, cups, or even leeches, should be applied to the back of the neck. If the nausea is very annoying, the irritability of the stomach may be controlled by cups or mustard over the stomach, hot mustard foot baths, and lime water and aromatic spirits of ammonia internally. Ice may be given freely, and when the stomach is quieted, cold drinks may be freely employed.

Having obtained a remission, more or less complete, that is, a decided lowering of the pulse, diminished heat generally, free action of the bowels, etc., quinine may be administered. Small and frequently repeated doses are best, unless the remission amounts almost to an intermission, or where there is reason to fear a return of the symptoms in increased force, like a congestive chill, then one large dose may be justifiable. If, under these repeated doses, say one or two grains every two or three hours, all the symptoms continue to improve, the remedy may be continued, and on the occasion of the next remission the dose may be doubled, say two grains every hour; of course, not necessarily arousing the patient from sleep.

Large, and even enormous doses are indicated when the symptoms assume a grave or malignant form, with great debility.

As the convalescence progresses, the dose may be gradually lessened, say two grains three or four times a day, and this may be continued as a tonic until the recovery is complete.

Complications which may arise will require the usual treatment as indicated.

Where the patient progresses too slowly, and there still remains great derangement of the digestive apparatus, and general sallowness, small doses of some liver tonic, as blue mass, may be used.

If signs of thinness of the blood are present, some form of iron may be added to the quinine.

How Prevented. The disease can only be guarded against by the avoidance of exposure to malarial influence, though it seems at certain times to prevail epidemically, and to attack many who cannot trace any exposure to marshes, etc.

Chills and Fever. This disease is known also as intermittent fever, ague, malarial fever, paludal fever, marsh fever, swamp fever, littoral fever, chills, shakes, etc.

How Brought On. This disease is caused by exposure to malarious influence, as the air of swamps, marshes, bodies of stagnant water, etc.

How Distinguished. This disease is readily recognized by its three stages, which are usually well marked and distinct. First, the cold stage, when the patient has a chill of greater or less severity, beginning with general uneasiness, yawning, languor, chilliness, finally culminating in a chill, or rigor, or shake. The skin is cold and blue, the teeth chatter, the patient shakes all over, and complains of the great coldness, even when loaded with clothing and placed close to a hot fire. Along with this he has headache, depressed spirits, thirst, sometimes nausea and vomiting. This may continue from a few minutes to several hours, but the usual average is about one hour or less. This passes, gradually, into the second or hot stage: The circulation becomes more and more rapid, the face is flushed, the skin becomes hot and dry, violent headache sets in, the bowels are constipated, the mouth and tongue are dry, and the thirst is great. The appetite is lost, and occasionally vomiting adds to the trouble. This may last from one hour to twenty; generally, at the end of six or eight hours, the patient gradually passes into the third or sweating stage. Moisture breaks out on the face and upper portions of the body, and extends to the abdomen and limbs, and generally becomes quite profuse. The nausea and headache disappear, and the patient, exhausted and relieved, falls into a refreshing slumber.

This is the usual course of an intermittent; but the order of the stages may be reversed, or any of them may be wanting. In place of the chill, a neuralgic pain may occur, generally over the brow,

or, the chill being absent, it becomes what is popularly known as "dumb ague." Sometimes very singular forms present; thus, the whole disease may be limited to one-half the body, or to one limb, while the rest of the body appears in perfect health. There may be dysentery or other diseases complicating the attack, and which are completely intermittent. During the intermission the only symptom of disorder is more or less debility, with indigestion or headache. These intervals occur almost always in the daytime, and may extend over more than one day. Hence, the disease is known as quotidian, with a daily paroxysm; tertian, with a paroxysm every other day, etc. The paroxysms have been separated by an interval of a week. Again, the case may be a double quotidian, that is, with two paroxysms daily. If protracted, as by neglect, general debility ensues, with want of red blood, enlargement of the spleen and liver, and general dropsy may set in.

How Treated. When the chill is on, the system may be aided to react, by heat externally, and hot drinks freely taken. The fever may be moderated by the usual refrigerant diaphoretics, purgatives to relieve constipation, and cold, acid drinks.

As soon as the fever ceases, the patient must be placed under the influence of quinine, to prevent a return of the paroxysm. One or two grains every hour, being careful to give enough to obtain its full effects, will generally break up the periodical tendency. At least 15 or 20 grains will be necessary. The return once broken, it is safest to continue this remedy in smaller doses for several days, or a week, at least. There is a remarkable tendency for the paroxysm to return in seven days, or multiples thereof. Hence, prior to the seventh day, a large dose, as 10 or 12 grains, should be taken. In very obstinate cases, complete recovery may be insured by a careful observance of each seventh day, and a renewal of the dose in anticipation of each. The cinchona bark, or the other extracts from it, as quinidia, cinchonidia, sulphate of cinchona, have all been of value, but the quinine is preferable, as most certain.

To break or prevent the chill, opium or laudanum, in one full dose, has often proven successful. Chloroform, in one full dose, say

one drachm, mixed with mucilage of gum arabic, has frequently aborted a chill, and prevented a return.

Various barks, particularly the dogwood; pepper, or piperin; willow bark, and salicin, an extract from it; sulphate of copper; arsenic; in fact, a vast number of extremely diverse articles, have been greatly extolled as useful in interrupting the tendency to return. Perhaps arsenic has best shown this power, but, after all, unless the preparations from the cinchona or Peruvian bark cannot be obtained, or for some reason are inadmissible, there can be but little advantage in resorting to these substitutes. Chills have been broken, and their return prevented, by fright, or some powerful impression made upon the person. Hence the success of certain charms and incantations, a blister, a shower bath, etc.

Should the disease be of long duration, a strong tendency to relapse is observed, the patient becomes debilitated, and iron with quinine may become necessary.

How Prevented. By avoiding exposure to the causes.

Break-Bone Fever. This is called Dengue, dandy fever, and by some it has been regarded as a form of scarlet fever, and called rheumatic scarlatina.

How Brought On. No cause save epidemic influence has yet been assigned to this disease.

How Distinguished. This disease is ushered in by languor, chilliness, pains in the bones and back, headache, fever, and swelling of the joints. The pains in the bones give rise to the name, as many patients express their feeling as if the bones had been broken, they "ache in every joint." Dandy fever is supposed to be a corruption of Dengue, or an allusion to the movements of the patient, whose aches cause him to move with a certain air of stiffness, like a dandy. By the close of the second or third day the fever abates, and the pains diminish. A rash breaks out over the whole body toward the sixth day, or even earlier, which is red and fine, like that of scarlet-fever; sometimes more like measles. It may vary greatly in its appearance, and be mixed with erysipelas, and purpura. Though the patient may be much improved by the abatement of the fever, yet generally about the fifth day it returns, with a renewal of all the symptoms. After the eruption appears,

the symptoms seem greatly relieved, and the complaint gradually disappears, leaving the patient stiff and sore, with general debility for a variable period. In many instances, at the height of the attack, there is intolerance of light, restlessness, red and watery eyes, swellings of the lymphatic glands, of the neck, arm pits and groins, a coated tongue, and tenderness over the stomach.

How Treated. As the disease must run its course, the treatment will consist in careful nursing, the relief of constipation, mitigation of the pains by opiates, and anodynes locally; bathing the parts, especially the swollen joints and glands, with laudanum, chloral solution, etc. Rest should always be procured by opium, chloral, or bromide of potassium. Rubefacients to the spine have been of service. After the disease has subsided, tonics may be necessary. This disease has rarely been known to result fatally. It is sometimes followed by rheumatism of the joints, abscesses, boils, etc. Hemorrhage may occur from the nose, mouth, bowels, or other mucous surfaces.

How Prevented. As it attacks nearly every one in the locality where it is epidemic, removal is the only means of prevention.

Catarrhal Fever. This is known as epidemic catarrh, influenza, *la grippe*, and epidemic bronchitis.

How Brought On. It is wholly due to an epidemic influence.

How Distinguished. The patient complains of having taken cold; is suddenly and often alarmingly prostrated; has more or less running from the nose, red, watery eyes, little cough, headache, especially of the frontal region, loss of appetite, more or less chilliness, followed by fever. Perspiration ensues, drenching the patient; and these phenomena alternate during the attack, which may last from three to six days.

Complications are extremely liable to arise, such as chronic bronchitis, and pneumonia, especially in the aged. The fatality is not great, and is generally the result of the pneumonia or other complication. It rarely proves fatal, except in the old or those previously debilitated.

How Treated. As this is a fever of great debility, depletion very rarely is necessary in any form. With young, plethoric persons, a brisk purge at the outset, the best the citrate of magnesia,

or some similar effervescent aperient, is beneficial. Refrigerant diaphoretics, hot acid drinks, mustard foot-baths at night, with care and protection from the weather, will form the whole line of treatment. If there are great restlessness, or want of sleep at night, opiates or the bromides will be useful. Tonics, especially quinine, or even stimulants, should be employed according to the indications. It is claimed that cases may be cut short by the employment of quinine at the outset, in full doses, say five grains repeated every 4 or 5 hours. Complications, as they arise, must be met with appropriate remedies.

How Prevented. It would appear that no plan can avail to prevent an attack of this disease, as those who are attacked and those who escape are generally occupying the same locality, equally exposed, under the same circumstances, etc. Privation and misery can scarcely be said to predispose to it, as an equal number suffer from it who are in every way comfortably housed, clothed, and fed. Of course, these latter influences favor a light attack and a more speedy recovery.

Yellow Fever. This is known as typhus icterodes, American typhus, black vomit, el vomito, yellow jack, malignant typhus fever, malignant bilious fever, etc.

How Brought On. This is a disease resulting from blood poison generated by peculiar conditions of the locality in which it prevails. It is not regarded by the best observers to be contagious, yet its germs are highly capable of being transported from place to place, as in the hold of a vessel, and when these germs are brought to a locality where the surroundings favorable to its spread are found, it rapidly enlarges its circle and increases the number of its victims. It cannot be believed that it can be carried by the sick, as too many instances have been known where such have been removed from place to place, and yet no new cases have occurred in those localities. Again, comparatively few of those brought in contact with the sick are found to be attacked, such as physicians, nurses, other sick in the same hospital or house. It may prevail as an epidemic or by single cases in certain localities.

The conditions for its rise and spread are a continued high temperature for several weeks, say above 80° F.; a high degree of

moisture in the air; that is, dry, sultry weather for some time; decaying animal or vegetable matter, particularly the latter. While it is slow of transportation, yet under favorable circumstances it may be spread very rapidly, as though the germs ran riot and grew with great luxuriance in a suitable soil. Thus, it has been known to be brought to a locality by a ship, but has failed to extend beyond that ship, for want of its proper food on which to grow.

While there have been many contrary opinions held relative to this disease, it is believed the above points are regarded as accepted by all calm and dispassionate observers.

How Distinguished. It generally commences rather abruptly, the patient rarely exhibiting any premonitory symptoms, often appearing in the best of health and spirits immediately preceding the attack. There may be a slight chill or cold stage, soon followed by pains in the back and limbs, almost invariably commencing in the night, the patient being roused from sleep by the attack. Some, however, may experience the usual languor, loss of appetite, slight headache and chilliness, which precede almost any form of fever, for two or three days prior to the attack. The fever soon comes on, and varies in degree, sometimes of great severity, but generally moderate, with but slight increase of heat, and a pulse ranging about 100. There is moisture of the tongue, with more or less coating. Nausea and vomiting may occur, but generally this is a symptom which is of later appearance. There is more or less tenderness over the stomach when pressure is made, and constipation is nearly always observed. Violent headache, especially over the eyes, is a marked symptom. The pains in the back and limbs continue, and are very prominent. A point often insisted on as peculiarly indicative of this disease is the redness of the eyes, called by some a "pink eye." In addition, these organs are irritable and watery. The mind is generally unaffected, though delirium does occur in a sub-acute form. The fever continues from a few hours to three days, without remission. When it ceases the intermission is complete, and often it does not return, and convalescence commences, with rapid recovery. There are generally, however, a certain amount of tenderness over the stomach, and a yellowness succeeding the flush of the skin.

In very many instances, after an interval of a few hours, or even thirty hours or more, a renewal occurs. The pulse falls far below the normal condition, it is weak, thread-like, and in every way is shown a depressed state of the circulatory system. The fever is not renewed, for the entire surface remains cool. The debility is intense, the tongue is brown, and the stomach becomes irritable, and now occurs the peculiar symptom which has given one name to this disease; there is a vomiting—sometimes it appears merely a regurgitation—of a peculiar black, coffee-grounds matter, mixed with a liquid, thin, varying in color, reddish, brownish, or blackish. Hemorrhage may now occur from any or all of the mucous surfaces, as observed in all malignant forms of disease. Generally the patient complains of this vomited matter, as having an acid taste; occasionally it is terribly acrid, and excoriates the surfaces over which it flows. It is bilious matter mixed with blood more or less disintegrated. It differs also in quantity, sometimes being in great abundance, and again barely perceptible. In addition, the bowels discharge quantities of a brownish or blackish matter, like tar or molasses. In grave cases, a low muttering delirium now sets in, there is a profuse clammy sweat, in short, all the symptoms of approaching dissolution, and death closes the scene from the fourth to the sixth day. In all cases the yellowness of the skin is marked.

There has been observed a great variety of difference in all these symptoms. Thus, while the prostration is generally great, in some instances the patient has been known to continue active to the last, and would not acknowledge himself as dangerously ill. These are familiarly known as “walking cases.” Some show a delirium of a decidedly mirthful or cheerful form, even after the black vomit has made its appearance. The second stage may vary from ten hours to four days. The third stage is one of exhaustion from the poison of the disease, as shown by all the symptoms, great weakness, feeble circulation, coldness of the surface and extremities, low delirium, or apathetic indifference. In place of this latter, we may have convulsions, or coma, great distress and restlessness. In non-fatal cases, convalescence ensues as the third stage, but recovery has occurred even after all these grave symptoms have been present.

Here, the progress toward health is very slow, with great tendency to relapses.

The average duration of the whole attack is under one week.

The patient may react from the collapse, and proceed through a typhoid condition to convalescence, or which may end in the final exhaustion of the patient. The mortality is very great, averaging two deaths for every five persons attacked.

How Treated. Perhaps no disease has been so thoroughly watched and studied, with so little result as to positive treatment. No special mode seems to offer any satisfactory results. To cut it short, a great variety of remedies have been employed and lauded, but have invariably failed when fully tested. Mild cases tend to recovery, regardless of treatment. As debility in grave cases is so marked, depressing or depleting treatment must be avoided. For the relief of the tenderness over the stomach, and the intense headache, cups or even leeches have often proved useful to these localities. A number of observers agree in recommending the use of a purgative dose of calomel, about five grains, followed by an effervescent or saline, as the citrate of magnesia, a seidlitz powder, etc. The use of cinchona or some of its preparations, particularly quinine, has been strongly recommended, and, in fact, has been employed everywhere, and in nearly every epidemic. As a means of aborting or cutting short the disease, it has always failed, and hence can scarcely be of service in the early stages; but later, when debility is evident, as a tonic it may prove useful, but only in the ordinary dose of one or two grains every hour or two. Ice is always a necessity, and should be given freely. It is best used when broken in small pieces, and allowed to dissolve in the mouth. To aid in relieving thirst, and checking nausea and the irritability of the stomach, lime water, champagne iced, mineral water, lemonade, orangeade, lime juice, or an acid drink made of dilute sulphuric acid, will always prove of great value. Each of these should be allowed freely, but in small quantities at a time. Charcoal water, hot lemonade, and hot coffee have also been of service in checking the vomiting. Of course, as before, these should be given in small quantities frequently repeated, and as hot as can be borne. A further aid is the use of a mustard plaster or the well known spice

plaster over the stomach, and when these fail, a blister dressed with morphia may check the irritation of that region.

To relieve the harsh feeling incident to the hot stage, the whole surface may be carefully sponged with cold water. Too much surface should not be exposed at once, and often this method will produce a free perspiration, which is eminently advantageous.

On the other hand, some propose and claim to have obtained great benefit from hot baths. Again, tepid water has been employed for sponging, and with apparent good results. Perhaps the best guide is the patient's feeling after the sponging. When he finds himself comfortable, refreshed, and relieved, the remedy has been useful, and may be repeated if necessary. But, when he is left chilled, depressed, and decidedly uncomfortable, the remedy has not been appropriate. When the stage of collapse comes on, stimulants become necessary, and must be employed, according to the indications; these, and concentrated food, as beef essence, milk, etc., must be given in small quantities, frequently repeated, great care being taken lest all is lost by the induction of exhausting vomiting, and the consequent rejection of everything carried into the stomach. In this case, or sometimes preferably, food and stimulants may be thrown into the rectum, and will aid materially in preventing fatal exhaustion. In all cases, however mild, great quiet, cleanliness, and good ventilation must be imperatively insisted upon.

Cases which appear of the mildest form at the beginning, often assume a malignant type; additional means may be employed as complications, or rather fresh symptoms, arise. For the extreme nausea, and tenderness over the stomach, in some instances, chloroform, creasote, carbolic acid, prussic acid, have been successfully employed. Astringents have seemed to check the black vomit, and among these may be mentioned acetate of lead, the subsulphate, the pernitrate, and the chloride of iron. These also are specially indicated in the occurrence of hemorrhage. Inquietude, morbid vigilance, call for opiates, the bromides, or chloral, and other anodynes.

Various antiseptics have been suggested, and in some instances are claimed as useful. Among these are the sulphites, carbolic

acid, chlorine, particularly the latter in the form of the chlorine mixture, as proposed by Prof. Watson for other analogous affections. This is prepared by placing eight grains of the chlorate of potassa in a pint bottle, and pouring over the salt one drachm of the strong hydrochloric acid. The mouth of the vessel must be closed until the reaction ceases, and then an ounce of water added and the whole well shaken; add the water, ounce by ounce, until the bottle is filled. The dose of this is a tablespoonful or more, according to the age of the patient, and repeated at short intervals, so that the whole pint may be taken in one day.

How Prevented. To prevent the formation or spread of this disease, the utmost vigilance is required. The most complete sanitary measures should be taken. Everything calculated to aid it, or to act as a nest for its germs, must be thoroughly eradicated. Cleanliness, the avoidance of overcrowding, disinfectants for all suspicious localities, the fullest ventilation, will act most efficiently. When the disease has attacked a locality, its inhabitants should be scattered at once; the germs should be destroyed by the free use of disinfectants, etc., preferably superheated steam, or dry heat. Cold, too, destroys these germs, and the reduction of the temperature of an infected vessel, etc., below the freezing point, will effectually prevent the spread of the disease.

The most rigid inspection of all suspected vessels, as they arrive at a locality, will most certainly prevent the introduction of the disease.

Small-Pox. This disease is known by the name of variola; a milder form varioloid; the confluent form is often called black small-pox.

How Brought On. This disease is solely due to contagion. Perhaps no form of disease is so readily conveyed by contagion. While it is believed that the fomites must be conveyed by contact or a near approach to the seat of the disease, instances are constantly occurring where the occurrence of the disease cannot be attributed to anything else than the epidemic influence. Generally, one attack secures an immunity from the disease, but cases do occur where the second, or even third attack has been seen. Occasionally, while a second attack is less grave, now and then, the

second time it will assume a malignant form. It would appear as though this were due to some vice in the system, or, perhaps, an exposure to a very concentrated form of the poison. Filth, want of ventilation, privation, and misery, would all, seemingly, predispose to severe attacks, though, too frequently, the reverse obtains, and a malignant type will invade the homes of the most refined and luxurious.

How Distinguished. The earliest symptoms are those incident to nearly all fevers, languor, nausea, pains in the head, back, and limbs, the pain in the small of the back being, in nearly every case, a marked symptom. Chills, and feverish flushes may alternate until the fever sets in, which is the primary fever, or fever of eruption. Along with these, there is, usually, more or less perspiration, nausea, vomiting, coated tongue, pain and tenderness on pressure, over the stomach, generally constipation, rarely diarrhœa, often slight delirium. Pains in the loins is often a special symptom, and more or less debility. When an epidemic of this disease is present, the disease may be anticipated with great certainty, in all cases where great complaint is made of pains in the loins, the small of the back, and intense headache. Occasionally, the symptoms are very extreme, the fever high, and the delirium great; and convulsions sometimes ensue, or even usher in the attack. Nor is this always a criterion of the gravity of the case, as in many cases these symptoms speedily vanish as the eruption appears, and the disease runs a mild course to its termination. Generally, however, the variety known as the confluent form may be anticipated when the chill, etc., are marked, and great fever results.

This stage generally lasts two days, and on the third day the eruption begins to make its appearance. In rare instances, the eruption is delayed, even to the fifth day, or may not appear at all, which is often observed when the disease is epidemic; many persons who have been exposed will have the fever of small-pox well marked, but not followed by any eruption. When it appears very early, as the second day, it is more apt to be in the confluent form, that is, where the pustules are close or large, and run into each other. The discrete, or separate variety, generally may be expected when the eruption is slow to appear. Along with the peculiar

eruption, in many cases, there is a rash, or efflorescence, resembling that seen in scarlet fever, and frequently this leads to an error as to what disease is under treatment, or it is believed to be a mixture of the two diseases. As in nearly all cases of fever, the sudamina, or sweat vesicles, are generally present, particularly on the chest and abdomen. This efflorescence may make its appearance first, and as the small-pox eruption appears, the other fades away. In grave cases, or those liable to become malignant, another eruption appears, known as petechiæ, or ecchymoses, that is, blood effused under the skin, in small patches or blotches. When small, and limited in number, these are not so very significant, though they show a broken down condition of the blood, but when large, or very numerous, they are a very unfavorable sign, and are extremely liable to be the forerunners of alarming hemorrhages. The eruption proper of the disease appears, as a rule, first on the face, neck, and wrists, the exposed portions of the body, next on the chest and arms, then they extend over the whole body, and lastly, on the lower extremities. This takes about three days. The first appearance is a small, red spot, slightly raised above the surface; sometimes these are livid or purplish. Gradually, it rises and forms a vesicle, then a pustule filled with a whitish-yellow fluid, and with the centre of the pustule depressed, forming a ring of fluid. This is the characteristic form, but not all of the pustules are thus depressed, or umbilicated. At first, the eruption may be taken for that of measles, but the pimples are smaller, rounder, and harder, than those of measles. They give to the touch a feeling as of a small, hard body, just beneath the skin. It occupies about five or six days for the eruption to be completed, and to fill up. This is the separate or discrete form, but in the confluent form, as they fill, the vesicles run together, and form large sacs, as it were, filled with the peculiar fluid. In this form a redness over the skin is mostly seen, prior to the appearance of the pustules. After the sixth day the centre disappears, the fluid assumes a darker color; this is called the stage of suppuration, for the fluid is pus or matter, and gives rise to other symptoms. The eruption is not confined to the skin, but is found in the mouth, the throat, within the nostrils, even on the balls of the eyes, which often cause ulcers and irrepar-

able injury to the sight. No doubt the eruption occurs, also, down the bronchial tubes to a certain extent, and along the œsophagus. Laryngitis, or inflammation of the larynx, has been often caused by the eruption, and resulted fatally.

As the eruption appears, the fever and accompanying symptoms generally disappear, or are decidedly lessened, although the fever and delirium may continue for a time, and especially is this the case in the confluent form. When the suppuration commences, say about the sixth day, the fever returns, and is known as the secondary fever. Now, the perspirations do not appear as before, but the skin is dry and harsh. This fever continues in proportion to the gravity of the disease, in mild cases, for three or four days; in the more severe or confluent, much longer. At this time the patient is very uncomfortable; the face, hands, and feet are much swollen; the eyelids often are closed completely; there is redness in all the spaces between the pustules, which is generally accompanied with a burning pain. This swelling is regarded as a favorable symptom, and when it does not occur in the confluent form, is apt to be followed by death. Salivation often occurs, and even to a profuse degree, with great swelling of all the glands of the jaw. This is so marked, that patients often insist that medicine has been given them to cause salivation. At this period, the delirium again occurs, especially in severe attacks, and may become maniacal, but is generally of a low, muttering form. If, in addition to this, there are twitchings, known as *subsultus tendinum*, coma, diarrhœa, the situation becomes one of great danger or vigilance. This stage commonly lasts for four or five days.

About the twelfth or thirteenth day from the inception of the attack, the third or dying stage commences, the stage of desiccation. The swelling and redness diminish, the pustules break, and the contained fluid exudes and forms a thick, disgusting, brown or blackish scab or crust. When the pustules are close, these scabs unite and form large crusts, glueing up the eyes, the nostrils, covering the face like a mask, and giving forth from the whole body a most intensely disagreeable odor. This smell is peculiar, and characteristic of the disease. Once recognized, it is always known as the odor of small-pox. The drying of the pustules occurs in the

same order as their appearance, and occupies about four or five days. In mild cases, the patient now is convalescent, and rapidly improves. Gradually the crusts fall off, leaving beneath a discoloration of the skin, which is slow to disappear. These are specially observable in cold weather, and in persons of dark complexion. If the scabs are forcibly removed, and in severe cases, they are renewed again and again, and may lead to ulcerations difficult to heal. There is more or less pitting left to mark the site of each pustule. In the mild cases these soon disappear, but the "pock marks" remain as cicatrices, in nearly every case, for a length of time.

In the course of an attack, the patient is liable to a variety of complications, as inflammation of the larynx and pharynx, bronchitis, pneumonia, pleurisy, etc. Erysipelas occasionally occurs with the eruption. Boils and abscesses very often follow its disappearance, and greatly prolong the period of recovery. Sloughing or mortification has been observed, especially on those parts much pressed upon. Inflammation of the eyes may result, and produce more or less impairment of vision. The same may occur by extension of the disease to the inner ear, and cause deafness.

In all cases, the occurrence of hemorrhage, bloody urine, and petechiæ, are very alarming symptoms. It is believed that, in the confluent cases, the matter, or pus, is often carried into the circulation, causing pyæmia, or blood poisoning. Since the knowledge of vaccination, much of the mortality of this disease is lessened, and unless complicated or malignant, nearly all recover under proper care and treatment.

How Treated. As the disease cannot be cut short, the sole effort of the physician must be directed to the mitigation of the symptoms, and the prevention of complications. Therefore, he must watch the progress, and meet everything as it arises. The bowels should be unloaded, but not too freely purged. The fever may be lessened by the usual remedies—cool acid drinks; sponging the surface with cold or tepid water, as found most grateful to the patient; refrigerant diaphoretics, or the solution of acetate of ammonia, or the citrate of potassa; the usual methods of relieving nausea, etc. Perhaps for this latter indication, the carbonic acid

water now obtainable in syphons, at the shops, will prove best; it rarely fails to quiet all irritability of the stomach. A number of observers have employed articles with a view of lessening the amount of matter, or pus formed, and for this purpose have suggested the free use of the sulphites, or the sulpho-carbolates, in full and frequent doses. For this purpose, also, much praise has been given to the pitcher plant (*Saracenia purpurea*), but it has failed to yield any advantages, and is now generally abandoned. Of course, the utmost attention must be paid to cleanliness, ventilation, etc., as in all diseases of this character. To prevent the great exhaustion which is generally the cause of death, the diet should be supporting from the moment of departure of the first febrile symptoms, and the appearance of the eruption. All food should be of the concentrated liquid form, soft-boiled eggs, milk, and articles made with it, beef tea, mutton and chicken broth. These should, at first, be given in small and frequently repeated doses, to coax the appetite, and to avoid increasing or bringing back the nausea and vomiting. As the powers of digestion improve, and the appetite returns, the amounts may be increased. Signs of prostration indicate the necessity of stimulants, as wine-why, milk-punch, brandy or whisky and water, quinine, the muriated tincture of iron, etc. To relieve the morbid wakefulness, and induce refreshing sleep, opiates, the bromides, or chloral may be used.

A great object is to prevent pitting of the face, which so greatly disfigures the individual; some endeavor to abort the vesicles by puncturing them with a fine needle, and emptying the fluid, by touching each with a fine point of nitrate of silver; then to exclude air, and soothe the inflammation by covering the whole face with a soft poultice of flaxseed, slippery elm, or bread and milk. A variety of plans have been proposed to exclude the air, such as covering the face with a mask of mercurial ointment, collodion and glycerine, gold leaf, white lead paint, tincture of iodine, subnitrate of bismuth and prepared chalk, poultices of various ingredients, carbolic acid, gutta percha softened in chloroform. All have been highly lauded as successful in a few cases, but none have succeeded entirely. Perhaps the best is the careful touching of each pustule with the fine point of caustic, followed by any light poultice, and

when the pustules have flattened, cover the entire surface with collodion, mixed with a very small proportion of glycerine, to soften it. This must be renewed, as it cracks from time to time, until the completion of the desquamatory process.

When the parts are much heated, evaporating lotions should be constantly applied. Every effort should be made to prevent the pustules forming on the eyeball. For this purpose compresses wet with cold water should be constantly applied; some suggest a weak solution of corrosive sublimate.

Complications must be appropriately met as they occur. Great care is required, in the stage of convalescence, to avoid exposure of the patient to cold or sudden changes of temperature. The patient should be aided to repair the great waste incurred by profuse supuration, by the long continuance of tonics, especially some form of iron, and the best regimen.

How Prevented. Vaccination is the great preventive of this disease. This must be thorough. It has been proposed that after a vaccine vesicle has crusted, the patient should be re-vaccinated as often as he will take, thus hoping to exhaust the susceptibility of his system. Even when vaccination does not prevent the disease, it modifies it markedly. Great care should be had to see that the vaccination is complete, and not too old. It is safest that this operation should be repeated at intervals not to exceed five or six years, and always when an epidemic is prevailing. To prevent diffusion of the disease, the utmost cleanliness and free ventilation should be rigidly enforced. Patients should not be permitted to mingle with other people, until the scabs have completely disappeared, and only after repeated and thorough bathings. Their clothing must be thoroughly disinfected, or better, destroyed; everything used in the sick room should be subjected to a similar treatment. The attendants should observe the utmost care, lest they act as transporters of the germs of contagion. Change of dress, and the most thorough washing of the hands, ought to be the very least they should do.

Milk Sickness. This disease has received a variety of names, as puking fever, the trembles, swamp sickness, river sickness, the

slows, the tires, the stiff joints, etc., all referring to its supposed cause or some of its prominent symptoms.

How Brought On. It is induced by eating the flesh or drinking the milk of cattle affected with the disease. Cattle are supposed to be attacked by it after eating certain weeds found only in pastures not before cultivated. It is only observed in certain regions, and rapidly disappears as the ground is broken up and its cause thus destroyed.

How Distinguished. The symptoms are sick stomach, vomiting, purging, great nervous prostration, trembling, stiffness of the joints, and a feeling of tiredness, remaining long after the main symptoms have disappeared.

How Treated. The treatment consists in most complete rest, emetics and laxatives, if requisite, to cleanse the stomach and bowels from the poisonous matter, bland fluids, for the thirst, and a diet of an appropriate kind. No special mode of treatment has been found beneficial.

How Prevented. By avoiding the use of the milk or flesh of animals thus diseased. It is claimed that if the milk is well boiled, and the flesh subjected to a high temperature, the source of the disease is destroyed, and these articles may be used with impunity.

The disease is now so rapidly disappearing, that few opportunities are obtained for its study, and hence but little can be said concerning it.

II. AILMENTS ATTENDED WITH PAIN AS THE PROMINENT SYMPTOM.

Neuralgia. This disease is truly a nerve-pain, and may affect any portion of the body. From its location it derives a variety of names, as *hemicrania*, when it affects one side or half of the head; *tic douloureux*, when it attacks the face, sometimes called facial neuralgia; *sciatica*, when it affects the great nerve of the hip; *pleurodynia*, attacking the side, or pleura; *gastrodynia*, the stomach; *angina pectoris*, the heart, etc.

How Brought On. It is generally caused by a sudden exposure of the part to cold; an injury of the nerve; weakness, as want of

red blood; the action of some poisons, as that of lead; or by malarious influence, when it takes the form of intermittent neuralgia.

How Distinguished. This form of pain is not associated with an inflammation, but seems limited entirely to the particular nerve affected. The pain is acute, shooting, sometimes expressed as a stabbing pain, with great tenderness on pressure over the affected part. Particularly is this shown when the pressure is made with the points of the fingers, when the patient will shrink or cry out. But if the pressure be more firm, the pain diminishes or disappears entirely. The pain is generally intermittent, that is, not always recurring at the same time, as in the form of *intermittent neuralgia*, but it comes and goes; there are paroxysms of acute pain, and in the intervals even the tenderness on pressure may disappear. Again, certain movements increase it, as a fall, or sudden concussion, coughing, laughing, sneezing, the application of cold or heat to the seat of the pain. It may, and often does, cause contraction of the muscles of the part, cramps, etc. No fever is ever present, though neighboring glands may become enlarged and painful.

How Treated. If the patient is anæmic, that is, wanting red blood, the appropriate remedies should be employed. It has been forcibly remarked, that "pain is the prayer of the nerve for healthy blood." To meet this indication, some form of iron, and preferably, the tincture of the chloride of iron, known also as the muriated tincture of iron, is best, and most certain to yield good results. The pain itself must be relieved, as excess of pain is exhausting and demoralizing to the entire system. Opiates in sufficient doses, or in the form of hypodermic injection of a solution of morphia, will generally relieve the paroxysm. Preferably, however, is the use of some article not so liable to lead to subsequent bad results, as the opium habit is most frequently formed in the effort to obtain relief from pain. Belladonna has proved of great value, and may be employed inwardly, and externally as a plaster, or in a lotion. This article, combined with morphia, both in full doses, has obtained a great reputation for the relief of neuralgia. Then we have aconite, hyoscyamus, conium, Indian hemp, chloral, etc. Lotions, or local applications, often speedily relieve. Thus, the part is commonly bathed, and covered with cloths saturated

with equal parts of laudanum and sweet oil, chloroform, liniments of belladonna, aconite, etc., ointments of the same, or stramonium, veratria, etc. Often, a mustard plaster will give the most prompt relief. Even flannels, wrung out of hot water, applied to the part, have proved useful. When anodynes are used, a full dose will moderate, if not remove, the pain, and the dose should then be renewed, at short intervals, and in diminished quantity, until no return is observed.

An immense variety of quite diverse remedies have been proposed, and lauded as useful, many of which are well worthy a trial. Prominent among these is a mixture of equal parts of chloral and camphor. When rubbed well together, these form a thick oily fluid, which may be applied to the seat of pain, and renewed as necessity demands; carbolic acid dissolved in camphorated oil; painting with the tincture of aconite; an ointment of veratria, grains twenty, to lard, one ounce. Occasionally, when other means fail, a blister over the seat of pain, dressed with morphia, will relieve promptly. Perhaps the subcutaneous injection of this drug is the most prompt means in severe or obstinate attacks. Anæsthetics, as chloroform, ether, nitrous oxide or laughing gas, act to relieve paroxysms, but some general treatment is required to insure permanent benefit. Constitutional treatment will consist of quinine, especially if malaria is regarded as the cause, iron, strychnia, or the *nux vomica*. These three, in combination, act with great promptness. The muriate of ammonia has been recommended, and certainly will often prove useful. For special forms of neuralgia, we have bisulphide of carbon, applied behind the ear, or to the temple; oil of turpentine; phosphorus, this especially for nervous debility as a cause of the pain; creasote, carbolic acid or crystals of chloral to the hollow of a tooth which is the seat of neuralgia, or some form of tobacco, oil of cloves, in fact, all these oils; brandy or whisky, which act by stimulating the part above the point where pain is felt.

Full diet, change of air, if possible, sea bathing, act as aids, and lead to a permanent cure. Many cases of headache are a species of neuralgia, and are relieved by the same treatment, as quinine, iron, etc. Recently, we have had the monobromate of camphor,

the guarana, and the bromide of quinia, greatly lauded in this affection. Each case requires a careful study of its causes, and their removal, if possible. If there is associated with the headache a sick stomach, with acidity, some antacid, as magnesia, particularly the carbonate, aromatic spirits of ammonia, or if the tongue indicate, podophyllin or a blue pill, will give relief, which will often be the ending of that attack. In addition, the valerianate of zinc, iodide of potassium, especially in a case with rheumatic tendency, arsenic, the bromides, the latter in very large doses, have proved especially valuable.

It is not necessary to specify the treatment for each particular form of this disease. Local applications, of course, are most useful when applied directly over the seat of pain, though hypodermic injections will relieve when inserted at any point.

Headache. This is technically known as cephalalgia.

Generally it is only a symptom, as showing congestion or fullness of the brain, dyspepsia, or some form of disorder of the intestines, etc.

How Brought On. It may result from rheumatism, neuralgia, poisoning, as by alcohol, narcotics, etc., fever, disease of the brain, womb disease, constipation of the bowels, overloading of the stomach, excitement, etc.

How Distinguished. When it is due to neuralgic trouble, it is generally one-sided or partial, as over the brow, and more or less intermittent. There is generally pain on pressure of the scalp, etc. There is also, in place of a constant pain, a darting or shooting pain from temple to temple. When it is the result of rheumatism, it is associated with more or less stiffness of the muscles, and rheumatic pain elsewhere. When due to congestion, fever, poison, etc., the pain is accompanied with heat and throbbing. A constant pain in the top of the head, often expressed by the patient as occupying a spot the size of a finger nail, may be regarded as caused by womb trouble. This form, too, is liable to result from a tumor of the brain, or some other disease of that organ, or pressure on the brain, from an enlargement or thickening of the skull bones. Headache due to constipation, is generally a dull heavy pain, with a confused feeling, increased by every effort, or even by the attempt to think or talk, etc.

How Treated. Firm pressure upon the head, even the tying up of the temples with a handkerchief, will often greatly relieve the intensity of the pain. Rubbing the scalp often acts in a similar way. When there is nausea, and there is reason to believe that the pain is the result of overloading the stomach, the presence of indigestible matter, or of a poison, as alcohol, opium, etc., an emetic, aided in its action by free draughts of warm water, or salt, or mustard and water, will frequently give immediate relief, which is followed by a refreshing sleep, from which the patient awakes perfectly recovered. When the headache seems due to nervous exhaustion, as when there is no nausea, it is known as nervous headache, and a full dose of aromatic spirits of ammonia, or of the bromides, or of the two remedies combined, will generally give prompt and permanent relief. When the tongue is furred, and the bowels constipated, free purgation is indicated, and preferably with blue pill, podophyllin, or some article which will act readily upon the liver, followed by a seidlitz powder, citrate of magnesia, etc. When an attack is heralded by premonitory symptoms, as in some cases, it often may be warded off by a full dose of some opiate preparation, the carbonate of ammonia, a free saline purgative, one of the bromides, or chloral. During a paroxysm, the anæsthetic influence of ether or chloroform, partially induced, evaporating lotions to the head, as alcohol, bay rum, cologne water, vinegar, ether, etc., afford great relief. Cold or warm water freely applied to the head, according to the feelings of the patient, often gives great comfort. A drawing of the blood from the head will be effected by hot mustard foot-baths. With persons predisposed to headaches, great relief is often obtained by a cup of strong tea or coffee. To prevent its return, the cause should be removed or avoided, and any condition of the system predisposing to it should be corrected. For debility, iron, quinine, nux vomica, strychnia, arsenic, and the preparations of zinc.

How Avoided. By care in hygiene, the avoidance of all causes of the disease, the removal of constitutional troubles. When due to uterine trouble, this should be carefully inquired into and removed. Rheumatic tendency may be relieved by iodide of potassium. That due to alcohol, etc., should be prevented by strict abstinence from these articles.

Rheumatism. This is divided into acute and chronic; articular, or that affecting the joints and muscles.

How Brought On. This is the result of exposure to cold, and particularly when the body is in a state of perspiration. The acute form seems to attack, almost solely, those of what is called a rheumatic diathesis, or constitutional tendency. The chronic form mostly attacks the aged, though it occurs at all ages. Again, it may be the result of a blood poison, as that of syphilis or gonorrhœa.

How Distinguished. The acute form of rheumatism is marked by fever of a high grade, accompanied with inflammation of the joints, sometimes one or two, again several, or nearly every joint will be affected. These parts are swollen, red, hot, and painful. Generally the shoulder joints, the elbows, the wrists, and ankles, are the parts affected. While the symptoms still continue, the parts are often bathed in perspiration. An attack may last for months, but generally averages about three weeks. It may result in incurable stiffness of one or more joints.

In frequent instances, this form has had as a sequel chorea, or St. Vitus' dance. It is extremely liable to bring on heart disease, which is almost never relieved. A singular incident is the sudden change or transfer of the disease from its first location to another. This is called metastasis, and is a dangerous complication. The part affected is suddenly relieved, the symptoms entirely or almost disappear, and suddenly they attack a distant joint or part; the heart, the brain, the stomach, are all liable, and in such an event, the situation becomes extremely grave.

The chronic form is a slow inflammation of the parts affected, and the pains are generally increased at night; there is a vague, tired pain of the affected part.

That resulting from the blood poison, as above mentioned, generally affects the long or flat bones, and rarely the joints. Along with the pain are found swellings, like lumps on the bones; these are called nodes, and are generally associated with inflammation of the membrane which covers the bone, the periosteum.

How Treated. The acute form requires a constitutional treatment of an active character. A variety of plans have been pro-

posed, with strong advocacy, and many have been abandoned as useless. Thus, the treatment by alkalies, as the carbonate or bicarbonate of potassa, in full doses, say twenty to thirty grains three times daily; the nitrate of potassa; the acetate of potassa, seems to have given most excellent results in very many instances. Sleep must be obtained, and the best remedy for this purpose is opium, as in the form of Dover's powders, which is a combination of opium, ipecacuanha, and sulphate or nitrate of potassa. The bromides or chloral, also, are useful to meet this indication. Locally, the pains may be relieved by anodyne applications, as laudanum, etc., to the affected joints.

Among the remedies, have been the free use of lemon-juice, quinine, colchicum, calomel, alone or combined with opium. These may be employed according to circumstances. Thus, quinine may be used where feebleness is evident, as by the presence of profuse perspirations. Lemon-juice may be allowed freely. Colchicum, when there is reason to believe in a gouty tendency. This, combined with an alkali, is a favorite remedy with many. To avoid the heart affections, bromide of ammonium has been thought useful, in fifteen to twenty grain doses. Several observers have found good results from repeated small blisters, applied to the affected parts. In debilitated cases, the muriated tincture of iron is especially valuable.

In the chronic form, the most useful remedy is the iodide of potassium in full and continued doses; guaiacum also has been of great value, though objectionable by its extremely unpleasant taste. Locally, liniments of various kinds may be useful, as those containing laudanum, turpentine, hartshorne, mixed with the soap liniment or chloroform or aconite liniments. Some have claimed good from the use of blisters to the spine, between the shoulders, when the pain is in the upper extremities, or over the small of the back when in the lower extremities. In the place of these, cups, cut or dry, may be employed. Hot water or vapor baths are of great value, particularly to relieve stiffness of the joints. Another plan is to sweat the affected joint by enveloping it in cotton batting covered with oiled silk. In that form due to gonorrhœa or syphilis, the long continued use of iodide of potassium is the only means that will

give any relief. The muriate of ammonia and opiates at night have also been very valuable. Some practitioners claim the best results, in all forms, from full doses of opium or its preparations, on the principle that the relief of the pain cures the disease, and certainly their reputed success would seem to warrant this belief. Chalky deposits in the joints often follow repeated attacks.

Gout. This is also known as arthritis, or podagra.

How Brought On. This disease is due to a constitutional tendency, and is superinduced by excesses in eating and drinking.

How Distinguished. This is generally preceded, for a few days, by symptoms of indigestion, acidity of the stomach, flatulence, costiveness, etc. Suddenly, sometimes, even without these symptoms, a joint, generally of the great toe, the ankle, the wrist, becomes very painful, red, and swollen. The pain is generally intense, and continues for several days. Some characterize it as a gnawing at the bone, a tearing of the parts asunder, a burning, as by fire. It is always accompanied by throbbing, and there is more or less general fever and nervous irritability. When these symptoms subside, the part is bathed in sweat, and the patient sleeps, from exhaustion. The paroxysms return at more or less frequent intervals, and may occupy the same or another joint. During a paroxysm, there is great danger of metastasis to the heart, or stomach, which may speedily end in death. This is known as misplaced or retrocedent gout.

This disease is distinguished from rheumatism, by its location; in the former, the small joints, in the latter, the large ones are attacked. There is great resemblance, and often the two appear combined, and this is called rheumatic gout.

How Treated. During the paroxysm, colchicum and the alkalies are most useful. Of the wine of the root or seeds of colchicum, ten to twenty drop doses may be given every three or four hours. Added to this, ten to thirty grains of the carbonate of potassa, or a full dose of the acetate, will generally promptly give relief. Care is requisite at first, not to offend the stomach, and cause nausea, and its action on the heart must also be guarded. As this disease is liable to be followed by chalky deposits, as in rheumatism, various remedies have been urged to dissolve these or hinder

their deposition. Lithia, in the form of the citrate or carbonate, has been employed, with apparently good results. As the intense suffering must be relieved, anodynes, as the opiates, are beneficial. Locally, care must be taken lest cold to the parts cause a retrocession of the disease, and its appearance at a less favorable point. Washes containing laudanum, the alkalies, etc., may be applied on rags to the part, and then covered with oiled silk. In case of a retrocession to the stomach, etc., stimulants, as brandy, laudanum, compound spirits of ether, chloroform, chloral, the tincture of rhubarb and senna, may be freely given at short intervals. To reproduce the attack in its original seat, place the feet in hot mustard baths; and also apply mustard to the chest, over the stomach, etc.

How Prevented. Where the tendency exists, the utmost care will be necessary to avoid all excesses; not by reducing the system by too great abstemiousness, but the avoidance of what is known as "high living," or excesses of any kind. Full nutrition, by articles easy of digestion, exercise in the open air, avoidance of constipation, will generally prolong the intervals between the attacks and ward off fresh ones. Add to these, in obstinate cases, change of air, as by traveling, the use of mineral waters and baths, and all is done that can contribute to success in this particular. When the system is depressed, iron and bitter tonics are very serviceable, but should not be too long continued.

Lockjaw, or Locked Jaw. This is known also as tetanus, or trismus.

How Brought 'On. This is generally the result of some injury or wound, more particularly what are known as punctured or lacerated wounds. A clean cut rarely is followed by locked-jaw. It is also due to crowding, carelessness as to ventilation and cleanliness, in hot climates. Cases are occasionally seen which apparently result from cold. That form from wounds, is called traumatic tetanus, and the other form is idiopathic. Another form, occurring in the newly born infant, soon after delivery, is tetanus of the new born, or trismus neonatorum. Sometimes this prevails to a great extent, and was formerly extremely common among the plantation hands in the Southern States of America. It generally makes its appearance within the second week from birth, and results fatally in

a very few days. By some, the disease is regarded as allied to rheumatism.

How Distinguished. The attack is ushered in by a feeling of stiffness of the muscles, generally of the jaws, hence the name locked-jaw. It speedily extends to the muscles of the throat, the chest, and the limbs. The stiffness increases to a spasm, which is paroxysmal, though it never entirely ceases. In severe cases, the spasm of the muscles of the spine is so great as to cause an arching backward of the whole frame, so that the patient lies on the bed supported only by the head and heels. Rarely, the reverse obtains, and the body is bent forward. Still more rarely, the curvature is to one side or the other. The jaw is frequently so tightly closed that food cannot be taken, and it may become necessary to knock out a tooth in order to open a passage for the articles of nourishment. When the muscles of the face are attacked, the most horrible grimaces are produced, or the mouth is drawn back at its angles, giving the appearance of an ugly laugh, called the sardonic grin. The spasm is often so unexpected that the tongue is caught between the teeth and badly bitten. Occasionally it involves the muscles of swallowing, and this becomes a matter of impossibility, the patient being liable to choke in the act. The breathing is more or less impeded by the stiffness of the muscles of the chest, producing labored respiration. These spasms are attended with great suffering, and are induced by the slightest cause, as a dash of cold water or air on the surface, a sudden touch—even a mental effort will cause them. Sleep is almost impossible, except from the influence of some narcotic. Occasionally, delirium, though not of a high grade, occurs. Thirst is usual, though it is really attributable to the difficulty of swallowing. The mouth generally is filled with foamy saliva, streaked with blood from injured parts. The teeth may be broken by the force with which they are brought together. The bowels are costive, but there may be involuntary passages; as also, the urine may be retained, or pass involuntarily. Death may occur suddenly, from asphyxia in a spasm. Though the spasm produces an increase of heat of the body, yet there are usually profuse perspirations, both in the spasms and during the intervals. A common symptom is a piercing pain at the pit of the stomach, going through

to the back. Death follows in from twenty-four hours to as many days, generally in ten or twelve days. It is a very fatal disease, being slightly less fatal when not due to an injury.

It may be confounded with strychnia poisoning, from the presence of the spasms; but here the succession of spasms is extremely rapid, the lower extremities are most affected, the legs being extended and the feet drawn inward, the jaw spasm is much less, and the face is rarely affected, the swallowing is easy, only the patient snaps like a mad dog at what is offered, and swallows it with a gulp. Also, the result is quickly fatal, and there is the history or attending circumstances to aid in the diagnosis.

It may be known from cerebral trouble, or spinal meningitis, by the absence of inflammation, of delirium, headache, and coma or stupor. From epilepsy it is known by that disease having intervals of apparent perfect health. Occasionally, there is a slight locked-jaw, with hysterical attacks, but the accompanying circumstances will define the disease.

How Treated. The treatment is generally unsuccessful. An infinite variety of remedies and plans have been suggested. Some powerful narcotic would seem to offer the only hope of relief. Opium, combined with brandy, say a grain every two hours, or even every hour, has appeared of value. Or hypodermic injections of morphia might be preferable, as more easy of administration, and more speedy in results. The utmost quiet must be enforced; light, noise, and draughts of air, must be excluded. As the patient will die from exhaustion, unless nourished, some plan must be employed to meet this indication. Food is to be given in a concentrated liquid form, and stimulants in full doses. Nutritious and stimulating enemata may be thrown into the bowels. In some cases, a tube has been passed between the teeth, as in the absence of a tooth, and carried into the stomach, by which canal, food, etc., have been thrown into that organ. Inhalations of the various anæsthetics have been very often useless, though they may partially control the spasms, and make the patient more comfortable. Among other remedies, have been belladonna, Indian hemp, quinine, all in large doses; the application of irritants to the spine, ice to the spine, cold affusions, etc. Of later years, a variety of new methods have been

suggested, as chloral, nitrite of amyl, croton~chloral, the calabar bean, woorara, etc. As, in some instances, the remedial applications have been carried to excess, it becomes a grave question whether some deaths might not be the result of these doses.

Perhaps the best plan would be the relief of the spasms by some article, as chloroform inhalations, or chloral, nutritious alimentation, and quiet. Instances are related, where recovery has ensued under such treatment.

How Prevented. The prevention of this disease could only be attempted when it was prevailing as an epidemic, among new-born children, or when an injury had occurred, and such a result was feared. For the first, removal from the locality, cleanliness, and care, would be all that could be done. For the latter, care, quiet, relief of pain, emollient and soothing applications to the seat of injury. Amputation of an injured part has been proposed when the nerves of the limb are involved, as the surest method of preventing the inception of tetanus.

III. AILMENTS ATTENDED WITH SLEEPLESSNESS AS THE PROMINENT SYMPTOM.

Wakefulness. Known as insomnia, morbid vigilance.

How Brought On. This symptom, for it cannot be regarded as a disease, marks the presence of some form of disease of the brain; or is the result of strong mental excitement, or mental labor; or is caused by excessive pain, or the inordinate use of articles, as strong tea, coffee, tobacco, etc.

How Distinguished. When not the result of acute pain, the patient finds himself, at the hour for retiring, wide awake, and is unable by any of his usual methods to compose himself to slumber. The history of the case will enable the physician to decide as to whether it is the result of excitement, over-work, the use of stimulants, etc., or a symptom of hidden brain affection. When no other cause can be assigned, the gravest fears may be felt lest it result in insanity, inflammation of the brain, or softening, etc.

How Treated. The treatment will depend solely upon the cause.

Whatever this may be, it must be removed, if removable. The patient should be made fully to understand the danger he is in, and to lend his entire concurrence in the efforts for his relief. Mental labor should be given up; overwork of any kind must be abandoned; articles liable to keep up the trouble must be forbidden, such as tobacco, coffee and tea. If general debility be present, the system must be brought to a natural standard by tonics and a proper diet. If there are symptoms of a fullness of the brain, this must be relieved by cups, or leeches to the nape of the neck, the temples, etc., or a blister to the same spot, dressed, when requisite, with morphia. Occasionally, this fullness may be relieved by proper physical exercise, as a long walk, calisthenics, etc. All excitement of any form must be avoided just prior to the hour for sleep, hence, light exercise at this time will be best, as diverting the attention from business, etc. Instances are common where the patient suffers from an empty stomach, and a quantity of easily digested food will satisfy the craving and promote a sound, refreshing slumber. Again, cold to the head, or hot foot baths, with or without mustard, or a warm bath, will relieve the patient promptly. The patient should examine his surroundings, as to whether any cause exists, such as improper position in bed; the best is always where the head and shoulders are above the level. For the relief of this symptom, except where it is the result of pain, medicines should be employed with caution. It is always best to obtain sleep with the mildest means first. A glass of beer at bed-time, a hop pillow, or the preparations of hops, hyoscyamus, lactucarium, bromide of potassium or of sodium, will generally relieve, and preferably in the order given. Some observers have found that opium or morphia, added to the bromides, appear to correct the unpleasant action of the opium, and aid its effects. The best remedy of all is the chloral. This should be employed in positive doses, say fifteen or twenty grains, repeated, when necessary, in one, two or three hours. A variety of other remedies have been proposed, but those quoted will answer the purposes.

Delirium Tremens. Called also mania-a-potu, alcoholism, dipsomania, potomania, the horrors.

How Brought On. It is caused by the abuse of alcohol, and

is generally induced by the sudden withdrawál of stimulants, or their long-continued excess.

How Distinguished. The symptoms are want of appetite, wakefulness, trembling of the muscles, debility, loss of digestion, unreasonable horror at slight causes, hallucinations. Want of sleep is the chief and most important symptom. This relieved, recovery rapidly follows. The dreams, for though he is awake, they are dreams, are of monsters, enemies, unnatural objects hovering around him, and endeavoring to injure or annoy him. Rarely they are of an amusing form, or he may perform imaginary tasks, and hold conversation with spirits, which he imagines he alone can see. Death will result unless relieved by sleep, though instances have been known where sleep was not obtained for two weeks. Generally, in three or four days, the attack yields, sleep comes on, and he awakes cured, though weak.

How Treated. Upon this point much difference of opinion exists, though the disease has been so fully studied, the opportunities being, unfortunately, very frequent. Formerly, the plan of "tapering off," was regarded as best, and the patient was made to gradually abandon his stimulants, while opium or some narcotic was given to aid in his relief. But, at present, excellent observers agree in ascribing the best results to other plans, in which the stimulants are positively forbidden. Perhaps the most positively successful plan, is that by giving highly nutritious food, in a concentrated form, and procuring sleep by the use of large doses of chloral. In a number of instances this has proved highly successful. The first dose, say twenty, thirty, or even sixty grains, should be followed, unless the patient sleeps, by a repetition of the remedy in one or two hours, but in smaller doses, say twenty grains. When sleep is induced, if prolonged, the patient may be aroused at the end of some hours, and made to take of some nourishment. Generally, he relapses into a sound slumber when thus aroused, without a renewal of the dose. Cases are reported where convulsions had occurred, and death seemed imminent, but which were speedily and permanently relieved, by this plan of treatment. Large doses of the tincture of digitalis, a tablespoonful at once, have succeeded most admirably, and no bad results followed. Perhaps this would equally

relieve, if employed in more reasonable doses, say one drachm, repeated every two or three hours. Even half a drachm has been found useful in severe cases. Chloroform, by itself, in drachm doses, has been quoted as giving good results. This remedy and red pepper, in thirty grain doses, would suit old drinkers, perhaps, better than those who had not so long been preparing their stomachs for such pungent articles. The bromides, in large doses, have also been reported as successful.

Generally, the first attack can be cured, but each fresh attack is more dangerous, either as liable to a fatal termination, or to the induction of insanity or idiocy.

How Avoided. By avoiding the cause.

IV. AILMENTS ATTENDED WITH WASTING AS THE PROMINENT SYMPTOM.

Starvation. *How Brought On.* This ailment may occur as the result of privation, loss of appetite, or some incurable affection of the organs associated with the ingestion or digestion of food.

How Distinguished. Starvation is characterized by a wasting of all the tissues; the eyes are sunk deep in their sockets; the cheeks are lantern-jawed, being hollow, sunken, and wan; the skin becomes pale, flabby, and harsh; the joints are prominent; the muscles are thin, soft, and flabby; the pulse is easily compressible, and rather fast; the heat is generally below the normal temperature; the hair becomes thin, and straggling; the step is slow, and tottering, and everything betokens a want of vitality.

How Treated. The cause must be removed, when this is possible. If there is chronic incurable disease of the stomach, the œsophagus, etc., the only hope is to prolong life by the employment of small quantities, in frequent doses, of highly concentrated food and stimulants. If these cannot be retained by the stomach, or there exist an insurmountable obstacle to their entering this organ, they must be used in the form of enemas. The irritability of the stomach should be relieved by the appropriate remedies, mentioned under the appropriate head.

But when starvation is the result of privation, as poverty, or enforced abstinence by shipwreck, etc., food should be given with great caution, in small quantities, of the lightest, most easily digestible form. The organs must be brought back to their normal condition very gradually, as the slightest excess may result in the loss of all the vantage ground. Starvation is extremely liable to result in scurvy, purpura, low forms of fever, and diseases of the bones.

How Prevented. Starvation may be brought on unintentionally, by a systematic effort to live cheaply, or to spare food for others, under circumstances of privation. Hence, much may be done to prevent starvation, by enlarging the popular knowledge as to cheap, yet nutritious forms of food; as to the valuation of grains, and the non-necessity of meats. Again, a patient may be starving while in the midst of plenty, because of a want of variety, the system becoming satiated, and refusing to assimilate what is offered it. The sanitarian and the philanthropist have much yet to do in this respect: the teaching of the poor how to live cheaply, and well; the proper, most healthful modes of preparing the food for the stomach; the alternation in foods, the due admixture of fish and flesh with grains and roots, etc.

Scrofula. This is also known as king's evil, scrofulosis, struma, tubercle of the lymphatic glands, white swelling, etc.

How Brought On. It is generally the result of inheritance, or the deprivation of pure air, the insufficiency of food, cold, in short, any form of privation will promote it, if not produce it.

How Distinguished. There is a peculiar vitiated condition of the system, which causes the development of slow inflammations, tumors ending in abscesses, ulcerations, and a variety of forms of skin disease, and disorders of the mucous membranes, the glands, bones, etc. It most frequently occurs in the young, and is very chronic in its forms of attack, and obstinately persists, healing at one point and making its appearance at another. Enlargements of the glands, particularly of the neck, armpit, and groin, are constantly occurring. These sometimes soften and discharge, or may disappear without softening. In children of this constitutional taint there are observed enlargement of the head, swelling of the upper lip, or nose, of the abdomen, flabby muscles. They are generally

of light complexion, with sandy or reddish hair, blood easy to inflame, and does not heal readily. Occasionally, the reverse obtains, the patient is dark-haired, sallow-skinned, but with all the other symptoms well marked.

How Treated. When such a general predisposition presents, every effort must be directed to the improvement of the general health, and the avoidance of the causes which deprave the system. The nutrition must be full; the hygiene must be carefully regarded; cleanliness, ventilation, avoidance of damp, unhealthy localities, whether for work or for a residence. The blood must be improved by alterative tonics, as the iodide of potassium, and the iodide of iron, etc. Iodide is inseparable from its treatment. Hence, we have it offered us in the form of iodized milk, the iodide of ammonium, and continued with a great variety of remedies. The iodized milk is prepared by dissolving one part of iodine in ten of alcohol, and combining it with ninety parts of milk, just fresh from the cow. Locally, iodine is generally used to soften or drive away the swellings, or reduce enlarged joints, etc. It is thought, by many, that the best results are obtained by its use in the form of a very dilute ointment, thus causing absorption and not irritation, as would be the result of strong applications. As a remedy to aid in building up, the cod-liver oil alone, or combined with the lacto-phosphates of lime, iron, potassium, etc., is very useful. Pure air and good food are indispensable, hence the sea shore is the best place for a residence, while under treatment. Dr. Lankester offers a dietetic salt, being common salt united with phosphoric acid, sulphuric acid, lime, iron, and potassium. Another preparation is a mixture of iron with chocolate, forming a caramel. Both of these are proper remedies, and should be employed along with the remedies indicated above.

Complications, as strumous ophthalmia, etc., must be met as they arise.

How Prevented. The means of prevention are indicated in the above.

Poverty of the Blood. This is known as anæmia, bloodlessness, watery blood, etc.

How Brought On. Poverty of the blood may be the result

of a loss of blood from a hemorrhage, as caused by injury or disease; over lactation, or suckling too long continued; any exhausting discharge, as diarrhoea; want of nourishing food; or privation and misery of any kind; or it may be due to the influence of poisonous air, like that of a malarious neighborhood.

How Distinguished. The patient suffering from this state of the blood is extremely pale, thin, weak, easily fatigued, every exertion causing palpitation of the heart, every little excitement causing great nervousness. Blood drawn, or the result of an injury, is thin, pale, and watery, showing a want of the red coloring matter. In young, growing persons, especially girls, these symptoms are very apt to be present, showing a growth of too rapid a nature, without the proper amount of fresh air, exercise, and nourishing food. There is generally a depressed state of the mind; the sleep is either too profound and not refreshing, or disturbed; in some, there is ringing in the ears; swelling of the feet and hands often are present, and almost invariably there is more or less swelling beneath the eyes, which are surrounded with a dark ring; as a general rule, the appetite is much impaired; it may be wanting, or appear insatiable and capricious, with a desire for strange food. Very many cases of long standing have vague pains, and suffer greatly from neuralgia, generally in the head and face.

How Treated. The indications for treatment are plain. Every effort must be made to build up the blood. The patient should be required to have plenty of fresh, pure air, light exercise, as it can be taken, and highly nourishing diet. The medical treatment will consist in tonics, particularly those containing iron. Among the numerous iron preparations, it may be necessary to ring the changes, as the patient soon appears to tire of one long continued. Again, certain forms appear to agree better with some persons than with others. Perhaps the muriated tincture of iron, combined with quinine, or some preparation of cinchona, will be found most useful. To this may be added, dilute phosphoric acid, or these may be combined, in pill form, as quinine and the phosphate of iron. In extreme nervousness, the valerianate of iron is useful. Strychnia, or nux vomica, often greatly aids in relieving the muscular debility. Where there is a scrofulous tendency, the iodide of iron, preferably

the syrup of the iodide of iron, with or without some cinchona preparation, is very beneficial. In young girls, particularly, there is apt to be a want of the menstrual flow, while in all women suffering with poverty of the blood there is more or less disturbance or irregularity in this function. Here, the muriated tincture of iron, or syrup of the iodide, with quinia, proves extremely valuable.

Of course, hemorrhage, from any source, must be stopped, and the solution of the sulphate of iron, combined with some form of ergot, rarely fails to meet this indication.

How Prevented. The causes, as above detailed, indicate the prevention. Remove any drain upon the system, as suckling, hemorrhage, overwork; enforce ventilation, exercise.

Night-Sweats. This is called colliquative perspiration.

How Brought On. Night-sweats are always the result of great debility, and are usually associated with consumption of the lungs, hence the dread with which this symptom is regarded.

How Distinguished. Strictly speaking, profuse perspirations, though often occurring at night, may occur at any time. When the result of phthisis, they are preceded by the hectic fever, a flushed face, etc., which commences in the evening, reaches its height at midnight, and terminates in a drenching sweat. When the result only of debility, they follow a serious and debilitating illness, or a general languor, and are induced by the most trifling exertion. Sometimes, in consumption, the sweating disappears, and is replaced by an exhausting diarrhœa.

How Treated. Night sweats, or profuse perspiration, at any time, when not the result of a consumptive tendency, can readily be checked by the free use of the astringent tonics. In all cases, every effort should be made to build up the strength, by good, easily digested diet, proper ventilation and regulation of the temperature. Occasionally, the heat of the room in which the patient lives is such as greatly to contribute to the keeping up of this symptom. The mineral astringents in full doses, given freely diluted, have a marked effect in checking sweats. In some instances, the position, as sleeping in a chair, in place of lying in a bed, will prevent, at least for a time, this profuse flow. When the bowels are not prone to diarrhœa, we dilute sulphuric acid, in doses of fifteen

to thirty drops, in sweetened water, with generally a good result. The body should be sponged at the hour of retiring, with vinegar and water, alum dissolved in whisky, or some similar astringent wash. Internally, the vegetable astringents are useful, particularly when there is a tendency to looseness of the bowels. Of these, the tinctures of kino, krameria, or catechu, are most valuable. The muriated tincture of iron, the subsulphate of iron, the syrup of the iodide of iron, the ammonio-citrate of iron, all act well in relieving the sweating.

How Prevented. In consumptive cases, the only hope is the careful regulation of the temperature, and the husbanding of the patient's strength. As these sweats are not only very exhausting, but are liable to cause additional trouble by the "taking cold," after a severe illness, every effort should be made to ward them off, by an early resort to tonics, full diet, etc.

Dropsy. This is known by a variety of names, according to its location, as anasarca, or general dropsy; ovarian dropsy; hydrocele, or dropsy of the testicles; hydrocephalus, or dropsy of the head; œdema, or dropsy of a part where the water is located just beneath the skin; etc.

How Brought On. As by the general term, dropsy, is meant that form witnessed in the abdomen or feet, this form alone will be discussed. It is generally due to a sudden stoppage of sweating, as by cold; thinness of the blood, as in anæmia; or some mechanical obstruction of the circulation of blood in the veins. It may result from heart disease, kidney disease, liver disease, or may follow any exhausting sickness.

How Distinguished. The first symptom showing the presence of dropsy is a gradual, painless swelling of the part. In the abdomen it is shown by great enlargement, want of tenderness, a dull sound on percussion, or gently striking the part. Striking with one hand, at one side, will cause a wave of the fluid to pass to the other, and strike against the hand placed on that side. Along with this, there is emaciation of the whole system, the appetite is poor, the patient is easily fatigued, and when the swelling is great, there is more or less difficulty of breathing. The swelling is regular and even, and not in lumps or irregularities, as in the case of a tumor.

If an abscess caused the swelling, there would be more or less pain at the seat of inflammation, and the other characteristic symptoms of that affection. As the dropsy increases, there is correspondingly increasing inability to lie down, for the water interferes with the lungs and heart more when the patient is in a recumbent position.

How Treated. When it is rather sudden in its appearance, it is called acute dropsy, in contradistinction to the slower or chronic form. This being the result, generally, of suppression of perspiration, or of the action of the kidneys, what are known as diuretics should be used, with free purgation. Jalap and cream of tartar in large doses, with plenty of water, rarely fail to act well and bring on copious watery discharges from the bowels and bladder. These may be given in infusion of juniper berries, or broom; and along with them, at proper intervals, the acetate of potassa, sweet spirits of nitre, etc., are valuable. Free purging may generally be obtained by the elaterium, say, in doses of a fourth, or a third of a grain, every three or four hours, till it acts freely. Digitalis formerly was thought to act favorably, but it is now falling into disfavor. When it is due to debility, along with these remedies, should be given the proper tonics, to bring up the blood to its proper standard. Care should be had, not to further exhaust the strength by these purgatives, etc. When the parts are so swollen as to become painful, or to interfere with the breathing, etc., as in the abdominal form, tapping becomes necessary; or when it is in the lower extremities, great relief may be obtained by a number of minute punctures through the skin, so as to let the fluid escape.

V. AILMENTS ATTENDED WITH INSENSIBILITY AS THE PROMINENT SYMPTOM.

Fainting. Known, also, as syncope, a swoon, or swooning, fainting fit, etc.

How Brought On. This may be the result of any sudden emotion, debility, heart disease, an injury, etc.

How Distinguished. The patient suddenly loses consciousness,

and falls or sinks to the ground. There is general pallor, apparent or total suspension of respiration, the heart's action is so feeble that it can scarcely be felt, or heard when the ear is placed over the side, the limbs are relaxed and motionless. It is distinguished from epilepsy by the absence of the frothing, the previous history, etc. Generally, the attack soon passes off, and the patient "comes to," as it is called, and gradually the functions are resumed.

How Treated. As fainting, if prolonged, may cause death, or serious injury to the system, by the formation of clots in the heart, it is very important that the fit should be shortened, and the consciousness restored. Perhaps the most valuable means to this end will be, to place the patient prone on the ground, so that the head shall be on a level with or below the body, the clothes loosened, so that no impediment may exist to the free circulation of the blood. This will insure the brain being kept full of blood, which serves to restore the nerve power necessary to reanimate the heart. In persons liable to faint, by reason of debility, hemorrhage, etc., it should be remembered that fainting cannot occur so long as the brain is kept full of blood. For this purpose, the head should be kept low, the pillows, etc., removed, and the feet and body elevated. To aid in restoring animation, cold water may be dashed suddenly in the face, stimulants may be placed in the mouth, and caused to run down the throat; hartshorne or smelling salts may be applied to the nose. In cases of fainting from emotion, where there is plenty of blood, bleeding from the arm may be resorted to. In addition, the limbs may be vigorously rubbed.

How Prevented. This is sufficiently indicated in the foregoing.

Apoplexy. *How Brought On.* This is generally the result of age, though it is occasionally seen in the young or middle-aged. As age advances, the blood vessels of the brain become less able to retain their contents, and some sudden emotion, a full meal, overstimulation, a strain, as at stool, or in lifting, causes a rupture; at some point, the blood is poured out, and either causes instant death, or forms a clot, by whose pressure life is hastened to a close. Those predisposed to apoplexy are short, thick-necked people, of indolent habits, and high-livers. Excessive mental effort also superinduces such an attack. Again, the wearing of a tight cravat,

which, by its pressure, hinders the return of the blood from the brain.

How Distinguished. When it is the result of the rupture of a blood vessel in the brain, there are rarely any premonitory symptoms. Generally, it is sudden; a stroke, as it is often called; the patient at once falls, unconscious; breathing more or less like snoring, called stertorous; the cheeks puffing out and in, the pulse slow, generally full; the face is dark, livid. This may continue from a few minutes to several hours, and is followed by more or less paralysis, with affection of the mental powers. When it is caused by congestion or fullness of the brain, the face, for some time previously, is flushed; the eyes are red and bulging; there are heat, throbbing of the vessels of the head, headache or vertigo, or both; the sight is more or less impaired. The patient has also been costive, dull, drowsy, and complaining of a fullness of the head; these symptoms are followed by sudden stupor, with stertorous breathing, pulse labored and slow, and the face flushed and livid. Generally, the total unconsciousness is brief. There might be slight convulsive movements. After recovery, the paralysis is generally but of temporary duration.

The history aids much in distinguishing this effect. Thus, the absence of the fumes of liquor, etc., show that it is not drunkenness, or poisoning by opium, or some similar drug. If it were the result of concussion or compression, there would be the evidences of injury. Fainting would be known by the presence of paleness, coldness, and the loss of pulsation.

How Treated. Of course, the age of the patient will have much to do with the decision as to the probabilities of entire recovery; the younger the patient, the better prospect exists. When there are evidences of plethora, or an abundance of blood, bleeding may be employed to relieve the tension on the vessels of the brain. This operation should be performed with care, watching the effect. When solely due to congestion, a free bleeding will often give complete relief, but should be followed by rest, care in diet, free purgation. When it is doubtful as to the use of bleeding, cups, cut or dry, may be applied to the nape of the neck, and mustard plasters along the spine, on the legs, and stomach. Injections into the lower bowel will aid during the first of the attack, and these should

be followed by free purgatives, particularly those of a saline character. The head should be elevated, and kept cool by the use of wet cloths, or a bladder filled with ice. In cases occurring in broken down or aged persons still more care is required, lest the trouble be rendered permanent by still further hemorrhage, or other injury to the delicate organism of the brain.

How Prevented. This will be met by the avoidance of excessive brain work, care as to diet and drink, in all cases where, from age or other reasons, an attack is likely to occur.

VI. AILMENTS ATTENDED WITH FITS AS THE PROMINENT SYMPTOM.

Falling Sickness. This is known as epilepsy. It is an attack of convulsions, with unconsciousness, and which recurs from time to time, without any regularity.

How Brought On. This may, and often does, result from parentage, intemperance, or excesses of any kind; injuries to the head, or fright.

How Distinguished. In many instances an attack is ushered in by a headache, vertigo, a sudden feeling of terror, or what is called the aura; a feeling as though something were creeping up a limb, or a wind were blowing on it. This extends slowly upward, and then the patient screams, starts, and falls suddenly, convulsed, foaming, grinding the teeth; the face is flushed, the eyes roll wildly, respiration is performed with difficulty, and there may be vomiting and involuntary passages. This lasts usually five or ten minutes, the fit passes off, the patient goes into a sleep, or a drowsy state, or may arise bewildered, and stagger on his way, with more or less headache, weakness, or even delirium and frenzy, which impels to attack those around. A fresh attack may occur in a few minutes, or hours; or even months may elapse before a renewal.

How Treated. During the fit but little can be usefully attempted. The patient should be cared for, and placed so that no injury may result from striking his limbs or head as he tosses about. The clothing should be loosened, and he should be allowed plenty of fresh air. If prolonged, ether, chloroform, or nitrite of amyl may

be given, by inhalation, to arrest its continuance. The special effort will be to prevent a recurrence, and for this purpose, many and diverse remedies have been proposed. Perhaps the best results have been obtained from the valerianate of zinc, one grain, two or three times a day; the bromide of potassium, in full doses, and continued for a long time, say 15 to 30 grains, three times a day, for months; digitalis, bromide of ammonium, conium, tincture of assafoetida, and chloral. The latter was given just prior to the expected paroxysm. The nitrite of amyl, also given at this time, say as the aura was commencing, has been found eminently valuable.

How Prevented. This indication will be met by the careful avoidance of the causes; by living temperately, yet using nutritious diet, keeping away from all excesses, avoiding all bad habits, and taking regular exercise in the open air. Tobacco, especially, should be avoided, as highly detrimental. The bowels should be kept as regular as possible.

Hysterics—hysteria, a "fit of hysterics." This was supposed to be caused by the womb, and hence its name, but it is seen also in the male, occasionally, and while womb affections predispose to it, it may be caused by general weakness, or excitability of the nerves.

How Brought On. Any mental emotions, fatigue, or unusual effort, may cause it in those who are depressed.

How Distinguished. It is characterized by a fit or attack of uncontrollable laughing, crying, or even convulsive movements, like epilepsy, though without loss of consciousness. It is preceded and accompanied by a choking sensation, as though something were in the throat, which the patient in vain tries to swallow. Some persons who are subject to this disease will have a variety of other troubles, such as a short, hacking cough, loss of voice—yet which, on occasion, is found to be only simulated—retention of urine, loss of power in one or more limbs, etc.

How Treated. The paroxysm may generally be relieved by soothing attentions, valerian, assafoetida, etc. In the intervals, the system must be built up with a good diet, iron, quinine, strychnia, etc., with bromide of potassium, valerianate of ammonia, camphor, and similar remedies, and chloral, as may be found requisite to relieve excitement and produce sleep. The prevention of a return

may be guarded against by regulated exercise in the open air, the avoidance of all excitement, sea bathing, traveling, and a proper occupation, to prevent the mind dwelling upon any sources of trouble.

St. Vitus' Dance. This is also known as chorea.

How Brought On. Chorea generally occurs in debilitated children, especially girls from the age of eight to fifteen, or when puberty commences, the occurrence of which often appears to act as a cure of the trouble. It results frequently from rheumatism in the acute form, from general debility, fright, excitement, fatigue, great mental effort.

How Distinguished. It is characterized by incessant movements of the hands, the feet, the face, the tongue, in fact, of the whole body. These are irregular, and appear beyond the control of the patient. They interfere with walking, working, and speech, but cease entirely during sleep.

How Treated. The disease may last for many months, but generally improves in a month or less. It may produce mental derangement. When it follows a rheumatic attack, it is more apt to be obstinate, and the appropriate treatment, iodide of iron, is best, combined with nutritious diet, sea bathing, and regulated exercise in the open air. In protracted cases, *cimicifuga* has proved very useful, as well as arsenic, sulphate of zinc, and bromide of potassium. When the attack is very distressing, chloral will be found of great service. In every instance, the patient should be guarded against annoyance from the thoughtlessness of those around him; and separation will be best, both for this purpose, and lest sympathetic imitation, or intentional mimicry, induce it in others.





CHAPTER V.

AILMENTS OF PARTS OF THE BODY.

SECTION I.—AILMENTS SEATED IN THE AIR PASSAGES.—Cold in the Head—Cold in the Chest—Sore Throat—Asthma—Pleurisy—Pneumonia—Consumption.

SECTION II.—AILMENTS SEATED IN THE FOOD PASSAGES.—Dyspepsia—Colic—Constipation—Diarrhœa—Dysentery—Cholera—Jaundice.

SECTION III.—AILMENTS AFFECTING THE BLOOD PASSAGES.—Heart Disease—Swelling of Arteries.

SECTION IV.—AILMENTS AFFECTING THE WASTE PASSAGES.—Kidney Diseases—Diseases of the Bladder—Diabetes.

SECTION V.—AILMENTS SEATED IN THE EXTERNAL COVERING OF THE BODY.—Diseases of the Skin—Of the Hair and Nails.

I. AILMENTS SEATED IN THE AIR PASSAGES.

Cold in the Head. Under this term will come coryza, catarrh of the nose, snuffles, sneezing, rose cold, hay asthma, hay fever, summer catarrh, influenza, and with symptoms extremely similar, we may consider ozœna, and polyps in the nose.

How Brought On. An attack of coryza, catarrh of the nose, snuffles, or cold in the head, is the result of an exposure to a draught, bareheaded, or when heated, and perspiring freely.

How Distinguished. The patient's eyes and nose run freely; at first, however, the eyes are suffused and watery, but the nose dry, swollen, and irritable; the air will not readily pass through it, the smell is lost, and constant efforts are involuntarily made to clear the passage. Sneezing occurs on every access of cold air. The distress extends up to the forehead, there are pain, headache, chilliness, and slight fever. As the cold seems to break, a free, watery discharge commences to flow from the nose, which may be enormous in quantity.

How Treated. The attack is generally readily broken up by a mustard foot bath, warm drinks, and twelve grains of Dover's powder at bed-time. When the fever is high, the solution of the acetate of ammonia, two tablespoonfuls in a tumbler of water at bed-time, will usually relieve this symptom. Many persons abort such an attack by one large dose of quinine, or by a hot lemonade at bed-time, and sweating it off.

Rose Cold, or June cold, hay fever, summer catarrh, autumnal catarrh, hay asthma, as it is variously called, is the result, not of cold, but of a peculiar source of irritation, as the odor of new-mown hay, of roses, ipecacuanaha, etc.

How Brought On. It occurs only in the spring, latter part of the summer, and fall, and only in those predisposed to it. Some have a similar attack from sleeping upon pillows or beds of duck feathers, and from a singular variety of causes.

How Distinguished. The symptoms are the same as those of a cold in the head, but can generally be traced to an exciting cause, as the proximity of hay, etc.

How Treated. This is still a matter of earnest consideration to many. In a number of cases, the only relief that can be hoped for, is to fly from the cause. Many have found the greatest benefit from the application of a saturated solution of quinine to the nostrils. The tincture of lobelia is a favorite remedy; the sulphates of iron and quinine, combined, have proved very useful; some are relieved by filling the air with the vapor of chloride of lime, or soda, and lately, arsenic. Three to five drops of the solution, given immediately after meals, has acted in a highly favorable manner in a number of cases.

Influenza having been treated of in a previous chapter, it will be unnecessary to again consider it.

Ozæna is an ulceration of the nose, originating in a scrofulous system, or one tainted with syphilis.

How Distinguished. This affection is characterized by a discharge from one or both nostrils, of a fluid of a very offensive odor, thin, irritating to the surface over which it flows, and aggravated by cold. In syphilitic cases, it almost invariably occurs from both nostrils; while in scrofulous cases, but one is apt to be affected.

This sometimes runs down the back passage, and getting into the throat or stomach, causes nausea, vomiting, loss of appetite. Occasionally, in severe cases, thickened masses, like scabs, drop, or are blown from the nose, and finally, decay of the bones takes place, and causes great deformity.

How Treated. This disease, which is also often known as catarrh of the nose, requires care in its treatment. When of syphilitic origin, iodide of potassium, and mercury, in full doses, are requisite. In the other form, syrup of the iodide of iron, cod-liver oil, good, nourishing diet, cleanliness, and fresh air, are the necessities. Locally, to relieve the odor, etc., lotions may be used, of chlorinated soda, chloride of zinc, sulphate of copper, carbolic acid, permanganate of potassa, etc., by means of the nasal douche, at least twice each day.

It should be remembered that similar symptoms may occur from the presence of a foreign body in the passage, or even general ill health. Here, iron tonics, good diet, and lotions of disinfectants to the nose, are all that will be required.

Polyps in the Nose will often give rise to the belief of the presence of a cold in the head. The nostril is choked, and after much effort, portions of hard, bloody mucus are forcibly expelled. There is generally a feeling of weight and fullness about the nose; a thin, bloody, odorous discharge often occurs.

How Treated. When small, the insufflation of an astringent, the best is tincture of chloride of iron, or solution of subsulphate of iron, twice or thrice a day, will relieve the symptoms, and cause the polyp to shrink and fall off. When large, and in some instances they become enormous, an operation is necessary. A polyp forceps must be passed up, with great care, and the polyp may then be seized and twisted off.

Cold in the Chest. This will include bronchitis, catarrh of the chest, catarrhal fever, coughs and colds. Bronchitis or inflammation of the bronchial tubes, or tubes which run to the lung, is an affection of the lining membrane or mucous membrane of these tubes.

How Brought On. This is generally the result of exposure to cold, but may also occur from certain occupations, as knife or tool

grinding, stone-cutting, in short, anything by which particles of irritating matter may enter the tubes and set up inflammation.

How Distinguished. There are fever, tightness with soreness of the chest, at first a tight, dry cough, which becomes loose, with expectoration of a white frothy matter; or, in bad cases, filled with pus or shreds of membrane.

How Treated. A cold in the chest, in its early stages, may often be cut short by the same treatment indicated for a cold in the head. A full dose of quinine; a hot lemonade, or ginger tea at bed-time; a hot mustard foot-bath, and a full dose, say ten grains, of compound powder of ipecacuanha at bed-time. Profuse perspiration results, and the cold is broken, leaving a little debility, which must be treated with generous diet and tonics. When prolonged, a free purgation with a saline is best, followed by tartar emetic, grain one-eighth, every two or three hours, with liberal draughts of some mild fluid, as flaxseed tea. A mustard plaster over the chest, or frictions with turpentine, will aid in relieving the difficulty. If there is nausea, or a tendency thereto, syrup of ipecacuanha, one-half teaspoonful every three or four hours, will relieve the cough and respiration. If very troublesome, squills and paretic may be given, particularly to enable the patient to sleep at night. Care should be observed in using opium and its preparations, lest the cough be made tight, and dangerous results be brought on. Stimulating expectorants are often necessary when the phlegm is tenacious, as the decoction or syrup of senega, chloride or carbonate of ammonia, etc. To keep up the strength, quinine, beef-tea, wine-whey and spirits may be necessary. Inhalations, as of steam, the infusion of hops, etc., often greatly relieve the air passages. Poultices of hops, Indian meal, and mustard, are useful, particularly in children.

Should the disease become chronic, croton oil, tincture of iodine, and plasters of hemlock or pitch may be applied to the chest, while tonics, stimulating expectorants and alteratives are used. In these cases, pure fresh air is valuable, and can do no harm, though this is generally prohibited, lest they should take fresh cold.

How Prevented. Cold in the chest may be prevented by keeping the chest and arms well protected in cold weather, and the feet

from dampness. Cod-liver oil and syrup of the iodide of iron continued for a long time will strengthen the system of one predisposed to this affection, and secure immunity from repeated attacks.

Sore Throat will include laryngitis, tonsillitis, quinsy, hoarseness, loss of voice, clergyman's sore throat, putrid sore throat, diphtheria, and diphtheritic sore throat, throat ulcers and relaxed uvula.

Laryngitis, or inflammation of the larynx, is the most common form of sore throat. Tonsillitis, or inflammation of the tonsils, when very severe, is known as quinsy. Aphonia, or loss of voice, is apt to be only partial. Clergyman's or orator's sore throat is generally the result of straining the voice, and does not occur so frequently as formerly, now that public speakers are learning to use their voices. Hoarseness may result from straining the voice, slight cold, debility, etc.

How Distinguished. Laryngitis is accompanied with sore throat, hoarseness, short dry cough, and more or less pain in breathing.

Tonsillitis shows, in addition to these symptoms, great swelling and redness of the tonsils, producing loud, hoarse breathing, interfering, to a degree, also, with the hearing. As it progresses, the pain becomes constant and throbbing, there is great difficulty in swallowing, and finally the abscess breaks or is opened artificially.

How Treated. In all cases of sore throat, free purgation is best at the outset, and especially by the use of cooling aperients, as the citrate of magnesia, etc. If the inflammation is great, leeches may be applied to the throat. The inhalation of steam, by placing the head over a vessel of boiling water, gives great relief. When there is ulceration of the throat, the atomizer may be used, with laudanum, hops, hyoscyamus, etc., in the vapor. When the swelling, etc., are great, after leeching, poultices of hops, flaxseed, etc., may be applied, and the throat bathed from time to time with a stimulating liniment, as hartshorne liniment, or painted with tincture of iodine. In ordinary sore throats, gargles are useful, as alum water, sage tea, honey, borax and water, and demulcent drinks, as flaxseed tea, gum arabic, or slippery elm water. In children that cannot be made to gargle, a good plan is to blow finely pulverized alum or borax into the throat, through a quill, or a folded paper, or tube of any kind. When the tonsils remain enlarged, they should be re-

moved by the knife or scissors. Great care is necessary lest a large vessel be opened, and severe hemorrhage result. Ulceration and relaxation of the uvula may be treated with a gargle of alum, or rubbed with some astringent, as sulphate of zinc or copper, to the ulcers. For the preparation of steaming, inhalations, and gargles, see pages 346, 347, and 350.

Loss of voice may require the application of electricity, or blistering of the back of the neck. Singers and others find great relief by allowing a piece of borax to dissolve slowly in the mouth, swallowing the solution as it forms. In all these affections, fresh air and tonics are indispensable (see p. 360).

Diphtheria, diphtheritic sore throat, putrid sore throat, may vary from a simple sore throat, with the formation of false membrane, to the malignant form.

How Brought On. It is the result of an epidemic influence, which acts with greater intensity in proportion to its being confined, as in a poorly ventilated, crowded locality. It may be carried from person to person, but only under the favoring influences.

How Distinguished. Prior to the appearance of the peculiar symptoms of the disease, there are languor, uneasiness, sore throat, and swelling of the glands of the throat. Fever sets in, headache, etc., and difficulty of swallowing. Examining the throat shows the parts swollen, red, and purple, followed, in a day or two, by a coating of a dirty, or yellow white, like wet buckskin. At the end of eight or nine days, this begins to loosen, cleans off, and recovery commences. In the severe cases, all these symptoms are aggravated; in children, the membrane causes a croupy cough, and the most energetic efforts to obtain breath, the patient becoming livid, and evidently strangling. In what is known as the malignant form, the first onset is with intense pain in the head, high fever, nausea and vomiting, and even bleeding from the mucous surfaces. The coating is very dark, ash-colored, leathery, and exhales an offensive odor. Prostration rapidly ensues, followed by stupor and death.

How Treated. There is a great variety of treatment proposed, but none seems to be fully satisfactory. If obstinate constipation be present, moderate purgation may be employed. Perhaps the

treatment most lauded, and which seems to have given most success, is the chlorate of potassa, with the tincture of the chloride of iron, say fifteen to thirty drops of the latter, in a wineglass of water, with twenty to thirty grains of the former, every three or four hours. Quinine may be used, and good diet, in a liquid form, eggs, milk, beef-tea, punch, etc. Gargles may be used, of solution of chlorine, permanganate of potassa, sulphite of soda, and carbolic acid. Or, these, in more concentrated form, may be applied, mixed with honey, to the parts, by means of a swab or brush; ice is very soothing and agreeable, when allowed to dissolve in the mouth, in small quantities. Among the internal remedies, all the above gargles may be placed; and we may also employ, with advantage, the gargle of lime-water, on page 347.

Asthma. The form of this disease known as hay asthma has already been considered.

How Brought On. Asthma is most frequently inherited. It is brought on by exposure to irritating fumes, by indigestion, by lung disease. It is really a spasm of the very small tubes of the lungs, and the attacks are generally preceded by more or less irritability, drowsiness, headache, etc.

How Distinguished. The attacks almost invariably occur in the night, and the patient is roused by a sense of suffocation, he rushes to the window and leans out, regardless of the weather, in the effort to get breath. Every symptom marks the difficulty of breathing and the dread of suffocation. The breathing is wheezing, the face is pale, anxious, cold, or even livid; perspiration is profuse. Relief comes with a discharge of mucus in thick lumps. The attack may last from a few minutes to hours. The intervals are very irregular—every night, once a month, or the attack not appearing for many months.

How Treated. During the spasm, relief may be obtained by smoking stramonium leaves; breathing air filled with the fumes of burning paper, soaked in a solution of saltpetre; inhaling ether, nitrous oxide or nitrite of amyl; hypodermic injections of morphia; by wine of ipecac, tincture of lobelia, both till nausea is produced; chloral, mustard to the feet and shoulders, inhalations, as Nos. 158, 159, page 351.

In the intervals, keep the system in good order, build up, if necessary; give bromide of potassium, in quite full doses, say fifteen to thirty grains, three times a day, for many weeks. Where practicable, change of climate is, perhaps, the surest remedy, and often relieves permanently.

Pleurisy, or inflammation of the pleura, is often known as a stitch in the side. It may be single or double, that is, on one or both sides. It consists of an effusion of water between the lungs and the walls of the chest.

How Brought On. It is the result of exposure to cold, a broken rib, a wound, cancer, or consumption.

How Distinguished. It is almost always preceded by a chill or chilliness, then a sharp, cutting pain in the side follows, which prevents full respiration, with fever, and a short cough. The pain can be located, and is increased by motion, breathing, coughing and pressure. As effusion occurs, the pain, etc., are diminished, though the difficulty of breathing becomes more intense. When the effusion is great, life is placed in great jeopardy.

How Treated. The effort must be to cut short the attack, and thus lessen the liability of dangerous effusion, or adhesions, which limit the breathing capacity. In high fever, at the outset, a full bleeding is useful, especially in young and plethoric persons. Then leeches or cups to the parts. Free purgation is always necessary, and, generally, great good follows the use of tartar emetic, calomel, and opium, say one-eighth grain of the first, one-half grain of calomel, and one grain of opium, repeated every three or four hours. Hot fomentations (p. 346) may be applied for the pain, and hot poultices to the affected side. Others suggest rest, by broad strips of adhesive plaster to the side, thus preventing its motion in breathing. If effusion of water occurs, blisters, and uva ursi tea (p. 348), or juniper tea (p. 349), will be useful, or, in some cases, tapping, to draw off the matter that may have formed, and prevent the action of the lung by its presence.

Pneumonia, or inflammation of the lung, is known, also, as lung fever, and as bilious or typhoid pneumonia.

How Brought On. It is caused by exposure to cold or damp; by injury, as a fractured rib; by position, as in fevers, etc., where

the position favors the flow of blood to the part, and obstructs its return, producing congestion, which may result in pneumonia.

How Distinguished. A chill and fever, accompanied with oppressed respiration, a dull pain in the lung, a short cough, followed soon by rusty expectoration. This is the peculiar sign, the spittle tinged with blood. The disease gets to its height about from the seventh to the ninth day, when, in mild cases, the symptoms improve and recovery goes on. In fatal cases, the debility increases, the breathing is more oppressed, the cough is more troublesome, and the expectoration is filled with pus. Death follows as early as the seventh day, but may be postponed until the end of the third week. Or, it may become chronic pneumonia, where, from the inflammation, the lung hardens, and becomes solid, resembling the liver in its appearance. It may be complicated with pleurisy, pleuropneumonia; with inflammation of the liver, bilious pleurisy; consumption; or the prostration, etc., may be so great, from the beginning, that it may be typhoid-pneumonia, called, also, "winter fever."

How Treated. In mild cases, by care, proper food and rest, the majority will recover without any medical treatment. In those more severe, except where the debility is very great, bleeding moderately, at the outset, may cut short its duration, and lessen its dangers. Cupping directly over the seat of disease is preferable, and always useful. The bowels should be unloaded, the fever, etc., reduced by syrup of ipecac, in teaspoonful doses, but this remedy should be watched, lest it add to the prostration. Others prefer the solution of acetate of ammonia, a tablespoonful of which, in half a tumbler of water, may be taken every two hours. After this, beef tea, and other good food, with small doses of ipecacuanha, carry the case on safely. Rest is so important, that some strap the side, as for a fractured rib. Support is absolutely necessary, by the use of concentrated liquid food, and stimulants must be given the moment debility is present. Blisters to the part are always valuable, and aid greatly in relieving the affected lung. These may be repeated, or followed by dry cups, hot poultices, etc., and when solidification occurs, tincture of iodine, croton oil, or other irritants (see p. 343), may be applied, to induce absorption.

How Prevented. By avoiding exposure, wearing flannel undergarments, high in the neck, and with long sleeves, and thus protecting the chest.

Consumption, tuberculosis, or phthisis, will include bleeding from the lungs, or spitting blood, and night sweats.

How Brought On. This is almost invariably hereditary, but may occur by change of climate, and at the same time, change from an out-door country life to one in a large city, where the home is situated in a small, ill ventilated, never too cleanly street, and where the occupation almost constantly necessitates in-door life. This accounts for the mortality by this disease, among the immigrants from Ireland to America.

How Distinguished. The approach is rapid, or slow. It may commence as a sequel to pneumonia, bronchitis, etc. A slight cough, a hemorrhage, debility, a fit of indigestion, a hoarseness, mark its onset. These slowly, sometimes suddenly, increase, with paleness, pains in the chest, quick pulse, then hectic fever, night sweats, diarrhoea, exhaustion, and death.

These symptoms are variable. Occasionally, improvement occurs, or there is an arrest of the progress, and hope of recovery is created, often to be lost by a renewal of the symptoms and a more rapid decline. Indigestion almost invariably accompanies the whole progress of the attack. Loss of menstruation often is the first symptom, with the female, to excite fear. In long cases, the emaciation, and all the symptoms, become painful to witness. The expectoration is mucous, mixed by degrees with pus, or blood, and in very many cases becomes coin-shaped, and partially floats when ejected into a basin of water.

Percussion and auscultation of the lungs show the progress of the disease in the lungs. Dullness, and want of proper respiration commence at the apex, or top, and make their way downward. As the diseased spot softens, gurgling, or crackling, as of the separation of wet surfaces, is heard. When there is a cavity, known as a vomica, the voice of the patient sounds just beneath the ear of the listener, when applied to the spot, and there is deep breathing, or cavernous respiration.

How Treated. While instances have occurred, of the arrest of

this disease, and an apparent approach to health, these are so rare that they cannot be depended upon, and the main hope is to postpone the fatal hour, which is often possible, and to make the patient comfortable while life lasts. Much more depends upon hygiene than medicine. Perhaps the most important point, and the one least regarded, is the supply of abundance of pure, fresh air. Fear is always expressed, lest the patient take cold, and thus the impure air is breathed again and again, every avenue being cut off by the mistaken kindness of the friends. Daily exercise in the open air, properly protected, is the next consideration. This, too, is systematically avoided. Proper employment, both of mind and body; proper nourishment, at regular intervals, with food highly nutritious and of easy digestion; cleanliness, both of the body and of the surroundings; sunlight in abundance; cheerfulness of the attendants; all these are eminently valuable, and contribute largely to retard the progress of the disease, while their neglect as fully contributes to the rapidity of the downward march. Medicines can do but little. Cod-liver oil, in fact, all animal fats, aid in maintaining the general strength, and retard its rapid decay. Iron, quinine, etc., also aid in a variety of ways, as do the remedies to soothe the cough and pain, procure rest, etc. Cod-liver oil has been employed in a variety of ways, because of the nausea it often causes, and with the hope of adding to its efficiency. Thus, it is mixed with the froth of malt liquors, or ammonia or salt are added to it, to disguise the taste. It is mixed with hydrate of lime, to make a soap, or with the lacto-phosphate of lime, iron, etc., to make an emulsion. It is combined with the tinctures of columbo, or gentian, or cinchona. It is made into bread, or given in gelatin capsules. Whisky, brandy, wine, etc., should be used moderately, to aid digestion, and never to stimulate, otherwise they add to the trouble. They may be given, with most advantage, in the form of milk punch, with eggs beaten up in it. Beef and brandy will not do any of the many miraculous things anticipated, and should be abandoned. Beef tea is very useful; it is easy of digestion, and rarely proves unacceptable. Milk, given in regular quantities, not so much at once as to embarrass the digestive powers, is of immense value. Koumiss, made by fermenting milk, is claimed, by some,

to be the real cure, if that be possible, of this disease. The cough may be treated by inhalations of the vapor of iodine, made by pouring ten to twenty drops of the tincture of iodine in hot water; or the inhalations of cubebs and carbolic acid, and of tar, given, p. 351. For internal remedies, the receipts Nos. 144, and 155 (p. 349), will be useful. Nothing, however, which disturbs the digestion, must be continued. If bleeding of the lungs occurs, rest, with perfect quiet, and gallic acid, in ten grain doses, will generally check it speedily. Ice, slowly dissolved in the mouth, will be useful, though salt is generally the popular remedy. The night sweats may be checked by aromatic sulphuric acid, ten drops in a wineglass of water, or by bathing the body with alum, dissolved in whisky. Diarrhœa may be checked by the vegetable astringents, as will hereafter be mentioned. Plasters of belladonna, opium, conium, irritation with iodine, croton oil, etc., will be useful for the chest pains. Blisters are rarely beneficial, and often exhaust the strength. Where it is possible, a change to an equable, dry climate would be advisable, but this must be done early, or else it is too often changing the place in which to die.

How Prevented. This is much more important to know than how it is treated, for in the prevention of consumption art is strong, in its cure very weak. Persons who have a hereditary or other tendency to the disease should not inhale an atmosphere loaded with smoke or dust. They should choose an outdoor life, and preferably, one in the country. Horseback exercise is especially useful to them. Sydenham, the great physician, said, "in consumption the best doctor is a horse, the best apothecary an ass;" so much did he believe in this exercise. Yet all violent exertion, as immoderate running, dancing, singing, etc., should be avoided. Flannel should be worn next the skin at all seasons, the night air generally avoided, a salt bath taken every morning, followed by thorough dry-rubbing, and the food be light and nutritious. When practicable, the cold winters should be avoided by a change of climate, as a long sea voyage. The chest should be expanded by appropriate exercise, and by the habit of deep and long breathing, several times a day. Very much can be done by these means, and often the tendency to the disease wholly escaped.

II. AILMENTS SEATED IN THE FOOD PASSAGES.

Dyspepsia, or indigestion, will include gastritis, gastric catarrh, gastric ulcer, vomiting of blood, sour stomach, water-brash, heart-burn, loss of appetite, and biliousness.

How Brought On. Indigestion, with its accompanying train of discomforts, is the result of haste or carelessness in eating, not chewing the food, excess or deficiency of food, fatigue, excitement, study, the use of tobacco, or of ardent spirits, and last, but not least, the ignorant use of medicine.

How Distinguished. The most prominent symptom is a feeling of uneasiness, not exactly pain, at the stomach. Pain would be indicative of ulceration. Nausea, and even vomiting, occasionally occur. There is a clammy feeling in the mouth, with a bitterness, or sourness. The skin is generally sallow. The bowels are generally costive, but this may be alternated by diarrhœa. When biliousness is present, the stools are apt to be scanty, and of light clay color. The following symptoms appear, from time to time: water-brash, a running of tasteless fluid from the mouth; heart-burn, caused by the presence of acid in the stomach, and extending up the œsophagus; palpitation of the heart; headache; depression of spirits, melancholy, or the occurrence of foolish ideas; disorders of taste, vision, etc.; more or less vertigo in every case. Dyspepsia is always an obstinate affection, but can scarcely be regarded as dangerous.

How Treated. Medicine is less important than the regulation of the quantity and quality of food, and the hours for its ingestion. Plain, easily digested food, is required. The stomach should never be loaded; the meals should not be at too long or too short intervals. Beef, mutton, fowl, oysters, roasted, stewed, or panned, never fried, with bread rather stale; crackers, kiln dried; rice; stewed or fresh fruit; and milk, as a beverage, will be the proper diet for the dyspeptic, and will give a sufficient variety. Pastry must be scrupulously avoided. Some prefer, and may have, milk tea, or milk and warm water, as a drink with the meals. Some seem to require a slight stimulant with dinner, and here, ginger and water, or cider, or sherry wine and water, may be allowed in small quantities.

Where the digestion is greatly impaired, the food may be given in very small quantities, at short intervals. To use the remark of a distinguished authority, "sixty meals a day." Of course, this is only to be enforced until the stomach will bear a larger quantity at a time, when the plan should be abandoned. Daily exercise, in the open air, and bathing, are very important, as well as rest at meal-time. Never eat under an excitement. At a meal, the family chat aids the digestion; hence the better appetite while traveling; the mind is relieved of cares, etc.

Medicines are required to stimulate the digestive powers, as gentian, columbo, and ginger (see page 361), in cases of nervous debility; iron, when the blood is poor, as the syrup of the iodide, or the potassio-tartrate (see pages 360 and 361). The bowels must be kept free by mild laxatives, as the mineral waters, senna, rhubarb, magnesia, sulphur; when the constipation is obstinate, aloes, or May-apple, may be added. If acidity is present, the bicarbonate of soda, or potassa, the carbonate of magnesia, and the aromatic spirits of ammonia, are best. The sulphites are highly lauded, as also is charcoal. When the liver is torpid, small doses of cream of tartar (p. 340), or dandelion tea (p. 350), will relieve it. Many prefer five drops of nitro-muriatic acid, three or four times daily, well diluted with water, as a stimulant both of the stomach and liver. The other acids, the nitric and hydrochloric, have been employed, as also bismuth, which lately seems to have obtained great favor. The heart-burn and water-brash are best relieved by bicarbonate of soda, ten grains, in water, before eating; when the latter is very annoying, astringents may be used, as blackberry tea (page 349), tincture of chloride of iron. Hiccough, which is often very annoying and distressing, may be controlled by the anti-spasmodics, but chloral is perhaps the best remedy for this. When blood is vomited, it is not from the lung, if dark and clotted, and mixed with food; this requires rest in the horizontal position, ice slowly dissolved in the mouth, and when very abundant, astringents, as gallic acid, in ten-grain doses.

When inflammation or catarrh of the stomach is present, there is great pain on pressure over the stomach, vomiting of all ingesta, and fever. A bilious attack is the result of indigestion, or expos-

ure, and has the same symptoms, with vomiting of greenish fluid, which is very acrid, constipation, headache, and vertigo. To relieve these attacks will require rest, abstinence from food, ice in small quantities, cream of tartar, and May-apple (pp. 340, 341).

Gastric ulcer, or ulcer of the stomach, is marked by a severe sickening pain and tenderness at a particular point, the seat of the ulcer. This is aggravated by motion, and by food, especially if it be hot. Vomiting is present, and often the ejected matters are mixed with blood. This is the special sign of gastric ulcer. The diet must be unirritating, lime-water and milk, arrowroot, rice, sago, corn starch, tapioca, fresh eggs, beef tea, or mutton broth. The healing of the ulcer is aided by subnitrate of bismuth, and oxide of zinc, about ten grains of the former, or three of the latter, three times a day. To check the incessant vomiting, hypodermic injections are valuable.

Colic is known as belly-ache, wind in the bowels, bilious colic, cramp colic, and flatulence, and may be produced also by a spasm of the stomach, or the passage of gall stones.

How Brought On. As above noted, it is generally the result of wind in the bowels; or, it may be caused by cramp or spasm of the parts; congestion, produced by exposure, particularly of the feet; or the passage of gall stones. Wind in the bowels is the result of indigestion.

How Distinguished. There are more or less vomiting, pain, with exacerbations, distention of the abdomen, constipation, fever of slight degree, belching of wind. In the bilious forms, the vomiting is of a greenish-yellow fluid, and may be followed by a slight jaundice. The passage of a gall stone is extremely painful; the line of pain can be mapped out by the sufferer, and is chiefly in the right side; sudden relief follows the escape of the stone, though the tenderness may continue a while. It is also believed that one cause of pain is the passage of the acrid bile. What is known as lead colic, or painter's colic, or "dry belly-ache," is caused by the poison of the lead carried into the system; here the abdomen is shrunken, there is no vomiting, the bowels feel as if knotted, the pain is lessened by pressure, hence there is no tenderness; there is restlessness, with extreme suffering. Generally, a blue margin is observed on the gums.

How Treated. The bowels are to be opened, and the pain and spasm relieved. When there is reason to suspect a loaded stomach, an emetic will be useful, as a tablespoonful of salt, or a teaspoonful of mustard, in a cup of warm water, repeated in a few minutes, if required. The bowels may be relieved by warm clysters of castor oil, salt, soap, molasses and water. Magnesias may be given, with essence of peppermint, or ginger, as on pages 340, 341. When the nausea and pain are great, we may use aromatic spirits of harts-horn, spirits of camphor, about twenty drops of either, repeated frequently. These failing, or the emergency being great, anodynes will be necessary, as chloroform, opium, paregoric etc. (see page 357). Externally, mustard plasters, or flannels, wrung out of hot liquor, hot foot-baths, and the immersion of the abdomen in a tub of water as hot as can be borne, will often give immediate relief. In many instances, massage, or kneading the abdomen, will cause the wind to be dislodged, though this requires too much care to be entrusted to inexperienced hands. Care, also, is necessary in every case, lest there be a concealed rupture or hernia, and in every instance this may be suspected, when the pain is prolonged, and the vomiting is of a dark color, and offensive odor.

The colic of infants is generally readily relieved by some aromatic, as anise or fennel tea, or peppermint candy, dissolved in hot water; at the same time, hot applications should be made to the stomach; the best is a flannel wrung out of hot whisky or alcohol. In more urgent cases, a drop or more of chloroform, added to the medicine, and repeated as required, will relieve. The bowels should be kept free by mild aperients, as senna, rhubarb, manna. Lime-water in the milk will correct acidity. Much of this trouble is due to the carelessness of those who have charge of the infant, and cram it, even with highly improper food, in place of allowing it the proper nourishment, and that only.

Bilious colic may need, in addition to the remedies already given, those specially acting upon the liver, as blue pill, or calomel with opium; podophyllin, taraxacum, nitro-muriatic acid, etc. If inflammatory action appears imminent, leeches or cups may be beneficially applied over the liver.

The passage of gall stones may necessitate the use of anæsthesia,

to relax the duct leading to the bowels, and to relieve the intense agony. Chloroform, internally, is supposed to aid in dissolving these concretions, thus supplying a double purpose.

When gout is transferred to the stomach, the treatment is similar, but requires more energetic measures. The doses of chloroform, morphia, etc., must be greater, and more frequent.

Lead colic will require relief of the pain in the same way, and antidotes for the poison. Iodide of potassium is perhaps the best, ten grains, three times a day, combined with a diet exclusively of milk. (See "Lead Poisoning.")

Constipation, or costiveness, will result from obstruction of the bowels, a knot, congestion, and will often be accompanied by vomiting of foul matters. Under this head we may consider typhlitis, or inflammation of the lower bowel.

How Brought On. This is generally the result of neglect of the bowels, indigestion, want of exercise, but may occur from stricture, or some mechanical obstruction.

How Distinguished. In the aged, or those otherwise diseased, the presence of palsy of the bowels, or of stricture, etc., may be feared, particularly when a hard, painful lump is felt at one point. Here, the costiveness is very persistent, there is vomiting of matters which should pass downward, with cold skin, prostration, great mental distress, and collapse. At the affected point, everything stops, wind accumulates and swells the abdomen.

How Treated. Much depends upon care and diet. The latter should be of a laxative nature: stewed and fresh fruit, molasses, bran bread, rye mush; with many, oat meal mush, for supper, acts as a laxative. Next, a very important matter is to have a particular time to attend to this necessity, and soon it becomes a fixed habit. Proper exercise, and kneading of the bowels, also act to aid in the relief of the torpid condition.

When medicine is used, it must be as mild as will serve the purpose: rhubarb, podophyllin, senna, and injections of warm water, or of soap, molasses, salt, etc. Many are readily relieved by suppositories of soap. The natural laxative mineral waters may be used with excellent results. Electricity is also useful. (See pages 340 and 341, for prescriptions.)

Typhlitis is an inflammation of a portion of the lower bowel. It has all the symptoms of constipation, with fever, pain at a fixed spot, swelling of the abdomen, vomiting, and shortly diarrhœa, which may be mucous, bloody, or filled with matter or pus.

Bleeding will be necessary, especially in the robust. Leeches should be applied to the affected spot, and their action aided by poultices of flaxseed, hops, Indian meal, etc. Anodynes are about the only remedies that can be useful. The food must be mild and soft, or fluid, as sago, arrowroot, beef tea, etc. It may end in an abscess, and death from its rupture into the cavity of the abdomen.

Diarrhœa, or looseness of the bowels, summer complaint, may be acute, sudden, or chronic, persisting.

How Brought On. This disease may result from improper food, as too much or unripe fruit, decayed vegetables, bad water, cold, etc.

How Distinguished. It is marked by too frequent and profuse discharges from the bowels, with more or less pain; the discharges may be bilious, thin, and watery, of a dirty, ill-smelling water, mucous, or "rice water," as in cholera.

How Treated. Rest, in the horizontal position, will, in very many instances, check the disease in its incipency. In every case this is important, and greatly aids the treatment. When the symptoms are not urgent, the discharge should not be checked suddenly, as it often marks the crisis or passing off of a disease. It appears as though the system were thus throwing off the cause, or poison. Especially is this true in typhoid fever. When acidity is present, antacids, as lime water, or solution of soda, are requisite. Blue pill, mercury with chalk, charcoal, magnesia, these may be given in the aromatic syrup of rhubarb, or with syrup of ginger, or cinnamon water. Astringents are necessary when these fail, and here we have blackberry root tea, legwood tea (p. 348), white oak bark tea (p. 349), and the like. For pain, and also to aid the other remedies, paregoric, or calamus (p. 350), may be added. When the disease is persistent, oxide of zinc, especially for children, is excellent. About five grains are a dose. In chronic cases, acetate of lead, or tannin with opium, say two or three grains of lead to a half grain opium, or three grains of tannin, with the opium, every three, four, or five hours. Enemas of the same, in solution, will

also be very efficient. The use of fruit and vegetables must be prohibited, and the diet must be regulated so as to avoid any irritation of the bowels.

Dysentery, or bloody flux, or bloody stools, is an inflammation of the large bowel, the colon, hence it is also called colitis.

How Brought On. This disease appears to occur most frequently about the last of August and September, and is due to the use of unripe fruit, improper food, exposure to cold and damp after the heat of the day, impure water, etc. It often prevails in a locality as an epidemic, attacking the majority of those exposed to it.

How Distinguished. It is characterized by pain in the lower part of the abdomen; tenderness on motion and on pressure; frequent desire to evacuate the bowels; small, bloody, mucous passages; great tendency to strain or bear down, which is called "tenesmus;" griping, called "tormina," and moderate fever. There may be debility, generally not at first; ulceration, and purulent, shreddy discharges may occur later.

How Treated. Where the strength will bear it, and the inflammation is great, leeches may be usefully applied, at first, to the abdomen, at the seat of the greatest soreness, followed by warm poultices of flaxseed, hops, Indian meal. A tablespoonful of castor oil, with fifteen to twenty drops of laudanum, is the usual dose before anything else, and this is generally very useful. A large injection of warm water is often of great service. Alteratives, as blue pill with ipecacuanha, camphor, or opium, are next in order; then acetate of lead and opium (as under *Diarrhœa*), to complete the cure, if it has not already been accomplished. As in *diarrhœa*, rest, in the horizontal position, is very important, and aids greatly in the early relief of the patient.

Of course, great care should be paid to the diet, which should be mainly of rice, arrowroot, chicken or beef tea; and for the thirst, iced drinks, as slippery elm water, gum arabic water, etc. (p. 322). Enemas of iced water are very soothing, or of flaxseed tea, with a half teaspoonful of laudanum (p. 350), or starch and laudanum, or acetate of lead and laudanum, in starch, in the same proportion.

With great debility, quinine may be given, or other tonics (see

p. 360), and even stimulants, if there is great weakness. Nitric acid, in the form known as Hope's Dysentery Mixture, that is, one fluid drachm nitric acid, forty drops tincture of opium, eight fluid ounces camphor water, in tablespoonful doses, every three or four hours. Sulphate of soda, or of magnesia, with laudanum, has proved useful with some.

How Prevented. Dysentery can generally be prevented by using great discretion in diet, avoiding all unripe fruit, all dishes which lead to dyspepsia, all irregularities of life, and exposure to cold, wet, and night air. A flannel bandage, a foot wide, should be worn around the abdomen. Often a spell of constipation precedes dysentery. Hence, in the late summer and early fall, particular attention should be given to having a full passage every day. Diet is generally sufficient for this. If not, use cream of tartar (p. 340), some laxative mineral water, a seidlitz powder (p. 341), or an injection of warm water.

Cholera. Known as Asiatic cholera, or cholera asphyxia, Indian cholera, epidemic or malignant cholera, and the occasional solitary cases of cholera morbus. Bilious cholera must next be considered.

How Brought On. Cholera morbus, or bilious cholera, occurs every summer, to a greater or less extent, though in certain seasons it is extremely prevalent, and is due to the use of unripe fruit, improper food, excesses, cold, etc.

True cholera is the result of a certain influence which is susceptible of change of locality, and which may affect the system and produce its characteristic symptoms by inhalation, by its contamination of the drinking water. It never has shown itself to be contagious. It would appear, most frequently, to have found its nest in accumulations of putrefying animal matter.

How Distinguished. It is generally preceded by a painless watery diarrhoea, called cholerine, though its attack may be extremely sudden, and all the worst symptoms develop with lightning-like rapidity. The diarrhoea may last from a few hours to three days, increasing in its frequency, and soon accompanied by vomiting and pain. The fluid discharged, both from the bowels and the stomach, is a colorless water, familiarly termed "rice-water discharges."

Cramps in the limbs ensue, with great prostration, cold skin, intense thirst, hoarseness, or loss of voice, loss of pulse, profuse sweating, blueness of the skin, the fingers become shriveled like those of a "washwoman," hence the term "washerwoman's fingers," the nose pinched, the breath cold, collapse comes on, and death closes the scene. If reaction occurs, it may be followed by a low fever, or the case may go on steadily to recovery. Cases of summer cholera rarely present all these symptoms, while cholera morbus has only the cramps, vomiting and purging, never the peculiar discharges, and almost invariably rapidly recovers under the appropriate treatment.

How Treated. The treatment is almost as varied as the number of observers, and in malignant attacks everything fails. The treatment undoubtedly must be greatly antispasmodic, and chloroform has shown its power in this respect. The diarrhoea, which is all the more dangerous, as it is painless, should be checked by the remedies given above. Particularly should rest be enjoined. The remedies, as paregoric, ginger, lavender, aromatic spirits of harts-horn, act by soothing and stimulating the system. If vomiting sets in, mustard to the abdomen and to the feet, or, if there is reason to suspect the presence of any offending matter in the stomach, great good has resulted from a draught of salt and hot water, a teaspoonful of salt in a tumbler of hot water. In repeated instances this has acted very promptly, and particularly while waiting for other and more powerful means. When the cramps, etc., have fully set in, the best and surest means is the administration of chloroform and aromatic spirits of ammonia, in full doses, frequently repeated. An excellent formula is: two fluid drachms chloroform; one-half fluid ounce each compound tincture of cardamom and paregoric; one and a half fluid ounces each syrup of ginger and mucilage of gum acacia; mix well. The dose would be a teaspoonful, followed by a lump of ice; repeated every ten or fifteen minutes, or even oftener, until relief is obtained. Of course, this will serve as an example, and may be modified by additions, or change of dose, as occasion demands. The use of stimulants will be necessary, both by the mouth and by frictions, to promote the flow of the blood, and produce reaction. In collapse, every remedy must be

increased. A variety of remedies are offered, some of which we shall enumerate: hot mustard, or salt baths (p. 337), warm baths of infusion of stramonium leaves, chloral, in large doses, hot enemmas, the warm bath, with carbonate of ammonia, chloroform by inhalation, etc.

Perhaps the best treatment of cholera is that known as the acid treatment. In the report on the subject of cholera, by the U. S. War Department, through the Surgeon General, this treatment is shown to be extremely successful, both as a cure and as a preventive. As a preventive, and as a remedy in every stage, it is given as sulphuric acid lemonade, to fill the system, as it were, with acid. Twenty drops of dilute sulphuric acid are mixed with four ounces of water, and sweetened. This is to be used freely, as a beverage, by the patient, attendants, and all exposed. By this plan, the mortality has been reduced to 8 deaths in 100 cases. It acts also as a prophylactic, by allaying the fears, and thus those exposed are less liable to an attack. Given in the same way to a patient, it relieves the nausea and vomiting, and the passages are gradually checked. The acid appears to act by killing the cause of the disease.

How Prevented. Cholera must be prevented by vigorous hygienic measures. All infected goods, cloths, etc., must be destroyed by burning, or thoroughly washed, dried, and disinfected, by acids in some form, as acidulated water, or acid gases. No diarrhoea can be regarded as harmless during a season of cholera. The ejecta must all be disinfected and kept from contact with other patients, their clothing, or any of their surroundings. Every vessel must be treated rigorously when even one case occurs on board of it, and thus render quarantine restraint unnecessary. Attention should be directed to the condition of each house and its premises, that there is the most thorough cleansing, ventilation, and disinfection; to the drainage of every town; in short, cleanliness, ventilation, and disinfection, will prevent this disease, and nothing else can do it so effectually; but it must be by visitation from house to house that the authorities can know that this has been effectually accomplished.

Jaundice may be called yellow, green, or black jaundice, though these are quite improper, as the word jaundiced means a yellowish

condition. It may be caused by liver disease, torpidity of the liver, ulceration, etc.

How Brought On. It is produced by any disease or mechanical obstruction which prevents the removal of the bile from its place of formation to the bowels; and thus it is taken up again into the blood, and distributed to the skin, the eyes, etc. It may be due to exposure to cold and dampness, to violent emotion, to pregnancy, to malaria, etc.

How Distinguished. It may be suddenly, or, after general languor, debility, etc., that the whites of the eyes are observed to be tinged with yellow, the roots of the nails, the face, and gradually the whole surface of the body. The urine has a more yellow appearance, and stains everything yellow, but the passages from the bowels are wanting in their natural appearance, being sometimes of a dull white, lead color, or a very light brown. The tongue is coated, and there is an acrid taste. The general system sympathizes; there is debility, with great depression of spirits, or melancholy.

How Treated. Unless an obstruction is known to exist, the remedies should be such as act on the liver. These are known as cholagogues. But moderate effects should be induced at first, hence small doses of cream of tartar, or of May-apple, as given, pages 340, 341. Sometimes three grains of blue pill acts very well. It should be followed by a purgative. Salines are best, as the citrate of magnesia, cream of tartar, etc. If the case seem obstinate, the cholagogues may be repeated, in small doses, at frequent intervals. Extract of dandelion, or dandelion tea (p. 350), or nitro-muriatic acid, five drops in a wineglassful of water, are best to continue the action, and promote the absorption of the effused bile. Ether and chloroform are supposed to act as solvents of gall stones, and hence are given in cases supposed to result from the presence of such obstructions. A teaspoonful of ether, in a tumbler of water, three times a day, may be taken.

Piles, or hemorrhoids, are small tumors or pouches filled with blood, at the edge of the bowel, or just within it. Hence, they are outward or inward, or they are bleeding, or blind, dry piles.

How Brought On. They are caused by anything which acts to

cause a flow of blood to the lower bowel, or which tends to obstruct its return. They are generally most frequently seen in the plethoric, those of sedentary habits, in pregnancy, or in those much troubled with diarrhœa, or dysentery, or the reverse, constipation.

How Distinguished. Back-ache is so commonly the result of piles, that their presence should always be suspected when this is much complained of. They are characterized by fullness and weight in the lower bowel, soreness, pain after a passage, and which may extend down the limbs and to the loins. When inflammation occurs, the aching and throbbing are intense. At every passage, there is felt the presence of something which will not come away, as though the stool was not completed. When they are outward, examination reveals the presence of one or more tumors, more or less painful. When within, blood, and the above symptoms with the passages, indicate their presence, or the piles may be forced out, and appear as a hard painful mass, which often must be forced back by the hands. The pain is great until it is returned, and the constriction is thus removed. While the bleeding is generally small, in some cases large amounts of blood are lost, and generally the patient who has suffered long shows a blanched appearance, and is affected with poverty of the blood.

How Treated. Special attention must be paid to the avoidance of any action of the bowels liable to cause or increase the flow of blood to the parts. Costiveness, especially, must be relieved, while diarrhœa, etc., are checked. Diet will have much to do with this, and it should be of food easily digested, and not exciting. Sedentary occupation, fatigue, standing too long, whatever tends to irritate the parts, or cause a flow of blood there, must be avoided. Soothing ointments, and the same containing astringents, will act well in relieving the trouble. After each stool, the parts should be bathed with cold water, or cold alum water, a teaspoonful of powdered alum to a pint, or the sal ammoniac wash (p. 355), and anointed with tannin ointment (p. 356), or other. Mild laxatives, as stewed fruit eaten freely, senna, rhubarb, sulphur, will be indicated, and the careful avoidance of irritating purgatives. The parts, when gorged with blood, may be unloaded by leeches, and cups to the lower part of the back. When the bleeding is too free, it must be

checked by subsulphate of iron, alum, cold water, ice, etc., applied freely to the parts, and by carefully preserving the horizontal position. When the piles extrude, as after a passage, they must be carefully anointed and replaced. One of the best applications is the following. A quantity, the size of a small pea, to be gently applied after each stool:

PILE OINTMENT.

Dried Persulphate of Iron,	half a drachm.
Powdered Opium,	one scruple.
Washed Unsalted Lard,	one ounce.

Rub them well together.

A body bandage, continually worn, often gives great relief. When all fails, the tumors must be cut off.

Fistula of the Anus, or fissure, will present very similar symptoms, but examination shows a crack, or fissure, in the bowel, at the opening; or, when a fistula, there will be a false passage, or a small opening, into which a portion of the stools will pass and be retained. Generally, surgical treatment is necessary, but often, by the use of soothing ointments, as belladonna, oxide of zinc (p. 356), lead, or touching the part with nitrate of silver, will cause it to heal. To relieve pain, opium, belladonna, etc., made into suppositories with cocoa butter, will be useful.

III. AILMENTS AFFECTING THE BLOOD PASSAGES.

Heart Disease will include palpitation, fluttering of the heart, pain in the heart, angina, rheumatism or neuralgia, dropsy, heart-break or rupture, and fatty heart.

How Brought On. Heart affections, or symptoms, may be caused by dyspepsia; by inflammation; by transfer of disease, as gout, or rheumatism, to the heart; by great emotion; by age, or debility from any cause.

How Distinguished. Heart disease is either an affection of this organ itself, directly, or by irritation by, or sympathy with, an affection of another organ. When the heart itself is diseased, there are irregularity of the pulse and of the beats of the heart, general

uneasiness, as by sympathy of the whole system, more or less pain, occasional coldness of the extremities, and lividity or suffusion of the head and face, brain trouble, as vertigo, fullness, etc. On listening to the heart, with the ear placed over it, the sounds will be unnatural, the beat will be heard irregularly, there will be a blowing or a hissing sound, a rubbing sound, or the beats will vary by being too feeble or given with too great force. These symptoms will show disease of the heart, as hypertrophy, or enlargement, atrophy, or diminution, dilatation, disease of the valves. But when there are palpitation, throbbing, irregular beats, without these sounds, then the affection will most likely depend upon poverty of the blood, or anæmia, which will be further shown by the other general symptoms of that condition, as detailed in a previous chapter; or these symptoms will follow a full meal, an evidence of their being the result of indigestion. Neuralgia, or angina pectoris, rheumatism, or gout of the heart, are shown by the intense, agonizing pain in the heart; in the first case, this pain shoots down the left arm; in the latter, there are the general symptoms of gout or rheumatism elsewhere, and a sudden cessation of the attack, and its equally sudden appearance in the heart.

Heart-break, or rupture of the heart, would result in sudden death after great mental emotion, and could only be known by a post-mortem examination. Though rare, it has been known to occur. Dropsy of the heart would be shown by the sounds of the heart being muffled, and the noise of fluid around the heart. Fatty heart may be surmised to exist when the patient has feeble, irregular action of the heart, when there is general evidence of a breaking down of the system, but can only be known by the examination after death. When sudden death occurs, it may be regarded as most probably due to heart disease, when it has been preceded by sudden difficulty of breathing, great and sudden paleness, a fluttering pulse, and pain in the region of the heart.

How Treated. Great pain in the heart, from whatever cause, demands immediate relief. This may be given by opiates, chloral, the inhalation of nitrite of amyl. Combined with these must be the most perfect quiescence in the horizontal position, with the head but slightly raised. To relieve the great debility accompan-

ing heart disease, stimulants are requisite, but they must be given with great care, lest they further excite the heart. When the heart's action is too rapid, it may be controlled by digitalis, and preferably, the tincture. This remedy may be given twenty or thirty drops at a time, in repeated doses, every three or four hours, watching its effects, and as the pulsations are reduced in force and frequency, it may be lessened in dose, or omitted. Often, this frequency of action is combined with feebleness, the irregularity being due to thinness or poverty of the blood; here, the indication is to unite the digitalis with iron, as the tincture of the chloride of iron, ten drops, or the potassio-tartrate of iron (p. 361). In all cases of syncope, or fainting, the patient should be placed with the head lower than the body, so as to cause the blood to flow into the brain, and thus arouse it to its duty. Too long a faint will permit the formation of a clot in the heart, which at any moment may cause sudden death. Where evidences exist of inflammation of the heart, this must be met by bleeding, leeches and cups over the heart, free purging, and the use of the tincture of veratrum viride, ten or fifteen drops, to quiet the heart's action. If of rheumatic origin, the treatment appropriate to that affection must be employed. If dropsy result, the fluid must be evacuated as rapidly as possible, by the use of diuretics, as sweet spirits of nitre, squills, juniper berry tea, brisk purgatives, etc. All emotion must be sedulously avoided. The diet should be of a tonic and easily digestible nature. When heart trouble is caused by indigestion, the former is relieved by those remedies calculated to relieve dyspepsia, as detailed in the chapter upon that subject. Exercise in the open air, when taken in moderation, will always be beneficial in heart disease.

How Prevented. All tendency to heart affections require fresh air, moderate exercise, the avoidance of excitement, easily digested diet.

Swelling of the Arteries, or aneurism, is the formation of a tumor on a part of an artery, by reason of a rupture of one of the coats of the vessel, or a general softening of the vessel, causing it to give way, and swell irregularly.

How Brought On. This is generally the result of an injury, as a blow on the part, a strain, etc., or it may be due to general dis-

ease of the artery, causing its coats to become softened, and lose their power of resisting the force of the current of blood. Rowing, boxing, and running, most frequently cause aneurisms, especially of the vessels of the arms and legs, as also of the larger vessels directly connected with the head.

How Distinguished. An aneurism, wherever located, is characterized by a swelling or lump, appearing rather suddenly, without any of the peculiar signs of inflammation, as redness, heat, etc. The tumor is always situated on one of the arteries, which may be felt extending from it on either side; it is soft, yielding, but elastic; has but little, if any pain, and is always attended with a pulsatile movement. Compression on the heart side of the tumor will cut off this movement, and cause a sensible lessening of the enlargement. In distinction from an enlarged gland, the aneurism is fixed, the gland more or less movable. Aneurism generally develops slowly. When situated in the large vessel near the heart, the aorta, it gradually causes a bulging of the chest, and often produces difficulty of breathing, pain at the spot, cough, loss of voice, and even interferes with swallowing. These complications are the result of pressure upon the parts surrounding the tumor. When it occurs lower down, as in the abdomen, there is deep-seated pain in the back and abdomen, no fever, and all treatment fails to have any effect. In every instance, the pulsation of the tumor is a marked symptom.

How Treated. Surgical interference is necessary for the complete cure of aneurism. In those occurring in the smaller vessels, this is all, but when this affection takes place in the larger arteries, as those of the chest, or abdomen, much aid and comfort may be derived from hygienic measures. It should be remembered that death may suddenly occur, and for this the patient should be prepared. All excitement should be sedulously avoided. Exertion should be limited to the lightest exercise. The food should be such as will be easily digested, so as to avoid any troubles with the stomach, etc. The stomach should not be loaded with food. The surroundings should be guarded, so as to avoid the possibility of annoyance, by much company, by business, or by household cares and vexations. By forcibly impressing upon the minds of the

attendants the vast importance of these points, much may be done to prolong life and avert the fatal rupture of the tumor. The volume of blood may be lessened by limiting the amount of fluid taken into the system, and this reduces the pressure upon the sac.

IV. AILMENTS AFFECTING THE WASTE PASSAGES.

Kidney Diseases will include inflammation of these organs, Bright's disease, Addison's disease, gravel, or kidney stone.

Inflammation and Congestion. *How Brought On.* The kidneys may be congested, either from inflammation, irritating medicines, cold, etc., which induces the active form of congestion; or, as a result of obstruction which prevents the return of blood from the vessels of the kidneys, which causes the passive form.

How Distinguished. This trouble is recognized by pain in the lower back, and tenderness on pressure over the kidneys. The urine is scanty, of high color, occasionally bloody. By boiling it in a spoon over a lamp, coagulation occurs, showing the presence of albumen. When inflammation is present, all these symptoms are seen, but in a greatly aggravated form, and with high fever, followed by the discharge of matter or pus with the urine; before the pus commences to come away, there is generally a bulging observed in the region of the inflamed kidney, which disappears as the matter is passed.

How Treated. The treatment must be directed to the relief of the congested condition, or the subduing of the inflammation, which is best met by free cupping or leeching, over the seat of pain; purging actively, and the use of warm hip-baths. The diet should be mild, and the drinks of a soothing nature, as slippery elm mucilage, or flaxseed tea (p. 350), or tea made of quince seeds.

Bright's Disease is such a state of the kidneys as causes the presence of albumen in the urine, and general dropsy. It is, to some extent, a breaking down of the structure of the kidneys.

How Brought On. This disease presents in two forms: the acute, or rapid, and the chronic, or slow form. Generally, it is the result of exposure to cold or damp; as after scarlet fever, or during a debauch, or pregnancy. By some, it is believed to result from

ague poisoning, and also from intemperance in alcoholic drinks. The slow form is the result of these causes, but often follows a long continuance of intemperate habits, or heart disease, and seems also due to certain climates.

How Distinguished. In the quick form, the patient has a chill, headache, sick stomach, backache, and pains in the limbs, dry, harsh skin, and difficulty of breathing. Then fever sets in, and dropsy follows, so that the face, the limbs, in fact, the whole surface is puffed up. The flow of urine is almost entirely checked; what is passed is dark, and filled with blood, acid, and is found to be full of albumen. The patient is constantly tormented with a desire to pass the water. After a week, or even a month, recovery commences, or the attack becomes of the chronic form, or the poisoning of the blood is so great as to cause death.

In the slow or chronic form, the presence of the disease is often not known until too late to check the downward career. The face becomes pale, the breathing is short, the strength is easily exhausted, and the bladder requires to be emptied frequently. When the urine is passed, it is observed to form bubbles on the top, due to the presence of albumen, which may be demonstrated by boiling, as before mentioned. Suddenly, a convulsion occurs, the sight fails, dropsy shows itself, diarrhoea comes on, and every symptom is present of the system breaking down. Generally, these symptoms appear to improve occasionally, but these appearances are deceitful, and all are apt to come back with increased force, ending in convulsions, coma, and death. These symptoms may extend over a period of years, but generally, a few months ends the scene.

How Treated. In the acute form, active medication is required. The loins may be cupped or leeches, or the trouble may be relieved by the use of the hot hip-bath; by active purgation, and particularly by the use of diuretics, as the citrate of magnesia, jalap, and cream of tartar, bitter-sweet tea, uva ursi tea, etc. (see pp. 341 and 348). The diet, as in all these affections, must be of a liquid, nourishing form. When the chronic form occurs, great care is requisite. Cold and dampness must be carefully avoided; the strength preserved; little exercise, for fear of fatigue; liquors of all kinds must be forbidden; the skin should be enabled to do its

full duty by warm bathing and dry rubbing; the bowels should be kept in a moderately loose condition, constipation carefully prevented. The diet, as before, should be of a bland nature. For this reason, it has been proposed to use exclusively a diet of skimmed milk, given in small quantities, frequently repeated, say two or three wineglassfuls every two or three hours. As a tonic, iron in some form is always best, and chiefly the muriated tincture of iron, ten drops in water, after each meal. When the stomach is not too irritable, cod-liver oil is useful to help repair the waste of the system. The dropsy becomes a matter of great annoyance, and its presence is always alarming. To relieve this symptom, the same medication will be useful as in the acute form. The cream of tartar and jalap may be given freely, in infusion of juniper berries, broom, etc.; and efforts should be made to cause free perspiration, as by the hot bath, or the hot air bath. Of course, other diuretics, such as given in receipts Nos. 146, 147, and 157, may also be used with advantage.

Addison's Disease is a singular affection, which is characterized by bronzing of the skin, weakness, poverty of the blood, irregularity of the heart, shortness of breath after the slightest exercise, inability to digest the food, nausea, vomiting, and impairment of vision. It is due to an affection of what are known as the supra-renal capsules, small bodies situated upon the top of the kidneys. It generally occurs in young men, and may last for years, always ending in death. It may terminate very gradually, by diarrhœa, stupor, etc., or convulsions may come on and end in death.

How Treated. The treatment is almost nothing. Care, fresh air, light exercise, and mild tonics may serve to prolong life. It has been thought that good has resulted from a mixture of the tincture of iron, chloroform, and glycerine, say fifteen drops of each of the first two, with two drachms of the last, this amount to be taken two or three times a day.

Gravel, or Kidney Stone, is also known as lithiasis.

How Brought On. This affection is supposed to be due almost solely to the use of lime-stone water, and hence it prevails much more frequently in certain localities.

How Distinguished. The urine is filled with small stones, or

sand; there is pain in the back, in the region of the kidneys; the attack is generally ushered in by a chill and fever, and more or less indigestion; occasionally, there is great pain, as in the passage of the larger particles. The desire to pass the urine is very annoying, and there is observed a sediment or deposit at the bottom of the vessel.

How Treated. As there is always acidity of the urine, this must be corrected by the free use of alkalies, and the pain and irritation relieved by free use of soothing drinks, of flaxseed, slippery elm, etc., with sweet spirits of nitre, bicarbonate of soda, etc. Should the pain be very great, opium, or preferably, chloral, may be given in proper quantities.

How Prevented. It is deemed possible to prevent these attacks by the use of food, mostly of a vegetable form, the avoidance of stimulants, the free use of water, or other diluent drinks, exercise in the open air, encouraging perspiration, and the use of antacids, as Saratoga or Vichy mineral waters.

Diseases of the Bladder will include inflammation, weakness, stone, and bloody urine.

Inflammation of the Bladder is known as cystitis, or catarrh of the bladder.

How Brought On. This may result from injuries, stone or gravel in the bladder, irritating medicines, foul urine long retained.

How Distinguished. There are pain in the region of the bladder, a constant desire to pass the water, burning or scalding in the passage, and a tendency to bear down. More or less fever and chilliness are always present. Occasionally, the tenderness on pressure over the bladder is very great.

These symptoms may be greatly aggravated, and accompanied with sick stomach, mental depression, cold sweats, and delirium. The urine may be bloody, filled with matter, or horribly offensive. Sometimes there is great difficulty in passing the water.

How Treated. The patient must be kept quiet in bed, and the parts freely cupped or leeches; warm hip-baths will be found of great value (p. 338). If necessary, mild purgation may be induced, as by castor oil, or some similar article (p. 340). To relieve the bearing down, heat and pain, pieces of ice may be passed into the bowel, and this will be found a source of great comfort to

the patient. The drinks must be soothing in form, as flaxseed, or slippery elm tea. Excessive pain and restlessness may be readily controlled by chloral (p. 357), or by suppositories or enemas of laudanum or opium.

Stone, or calculus in the bladder, would be indicated by sudden stoppage of the stream in urinating; pain in the bladder, more or less acute; but could only be positively known by the use of a sound passed into the bladder and striking the foreign body. A prominent symptom, especially in children, is itching or pain at the end of the penis, causing the child to be constantly pulling at or rubbing the organ. This sometimes causes an elongation of the foreskin, and great annoyance by the collection of the secretions in this part.

How Treated. The removal of the stone by an operation, either cutting or crushing, is almost all that can be done. A vegetable diet should be preferred, and the bowels and kidneys kept in prompt action.

Bloody Urine may be the result of injuries; the presence of a stone, with sharp edges or points; a strain, causing the rupture of a small vessel; or from inflammation, etc. It is seen in cancer, scarlet fever, in the aged, or may result from the use of turpentine or cantharides.

How Treated. When the blood is mixed with the water, it is almost sure to be from the kidneys; when it appears to follow the urine, it is from the bladder. When an instrument has been used, and it follows either in a stream or drops, it is from the passage itself, and most likely has been caused by an injury. Rest in the recumbent position is of great importance; astringents must be employed to check the hemorrhage, and the best is gallic acid, in doses of ten grains, or the muriated tincture of iron, or powdered alum, ten or fifteen grains; or some of these may be injected into the bladder in free dilution. If it is from the passage, and alarming, this may be readily stopped by passing the catheter, and compressing the parts around it until the hemorrhage is checked. When the instrument is withdrawn, which should not be until time has been allowed for the obstruction of the torn vessel by coagulum, it should be done with great caution.

Diabetes, or an immoderate flow of urine, may be sugary diabetes, or simple diabetes.

How Brought On. This disease is caused by injuries to the head; the abuse of alcoholic liquors; exposure to cold and dampness; sudden checking of the perspiration; emotion; fevers; diseases of the brain and spine; and in the sugary form, the inordinate use of food containing sugar.

How Distinguished. The simple form, or *diabetes insipidus*, generally comes on suddenly, and the patient finds himself constantly passing his water, and on each occasion a large quantity, amounting to many quarts each day. The thirst is intense, and the patient drinks immoderately, both day and night, being compelled to rise frequently to urinate, and also to quench his thirst. He becomes weak and thin, with a harsh, dry skin.

The sugary form, or *diabetes mellitus*, usually comes on more slowly, and is attended with general languor, uneasiness, emaciation; gradually the desire to pass the urine becomes very frequent, and the amount becomes alarming, accompanied with great thirst, and often with a voracious appetite. The symptoms are similar to the other form, the general powers fail, hectic sets in, dropsy of the limbs, diarrhœa, the lungs become involved, and death closes the scene.

How Treated. The treatment of this affection is yet, to a great degree, a matter of uncertainty. It is believed that the absolute prohibition of sugar in the diet, or of articles prone to form sugar, will aid greatly in checking this disease. Hence, the diet must be composed of meats, eggs, butter, bran-bread, cabbage, onions, celery, lettuce, spinach; and these must be varied by turns, lest distaste occur, and thus an additional cause of debility be induced. The forbidden fruits would be, all fruits, wheat bread, potatoes, beets, milk, liver, sweet breads, etc. Liquors must only be allowed in case of great debility, and then only in small quantities, preferring whisky, or sherry or claret wine.

A great variety of medicines have been proposed, but few seem especially useful. Cod-liver oil, both by the mouth and by inunction, may prevent the rapid progress of the debility. Perhaps the best results obtained have followed the "skim-milk treatment." The

patient is restricted to the milk, carefully skimmed, for a month at least, and then allowed, in addition, two to four pints of curd made by the use of rennets, gradually; as improvement occurs, lean meat and green vegetables are given, then eggs, fish, fowl, etc. If recovery occurs, substances containing sugar and starch should not be allowed for a very long time, if at all. There is always a loss of weight for the first few weeks, after which improvement commences. In some instances, the "condensed milk" has been employed, this being brought to the standard of pure milk by the addition of water. It is claimed that if the disease is not very far advanced, the sugar will disappear from the urine even in two weeks, and often at the end of five or six weeks, and in cases of long standing, that the progress of the affection will be arrested, even though a cure may not result.

V. AILMENTS SEATED IN THE EXTERNAL COVERINGS OF THE BODY.

Diseases of the Skin.

There are a great many names to skin diseases, but, so far as treatment goes, they may be divided into but a few forms, which are not very hard to recognize. The first is:—

1. Those which have a moist, weeping or watery surface. This is caused by small blisters which break and discharge their contents. Under this head come grocers' itch, bakers' itch, bricklayers' itch, washerwomens' itch, moist tetter, salt rheum, bath itch, gum boils, fever blisters, milk crust, scald head, water pox, shingles, brow shingles, tooothing rash, ringworm, canker sores.

Eczema, aphthæ, and herpes are the medical names for these various complaints.

How Treated. This is by diet, by local measures, by internal medicines. Spices, coffees, liquors of all sorts, pickles, and rich food, should not be taken. Meat should be taken in small quantities. The bowels should be kept open by appropriate laxatives (see page 348). For the local treatment, the crusts should first be removed by soaking with oil and then washing with soap and warm water, or poulticing, if this does not answer. When they are all

off, cover the part with a cloth wet with tar-water, made by stewing a teacupful of tar in a quart of boiling water. Or anoint the part with an ointment made of equal parts of tar and unsalted lard, or with oxide of zinc ointment (p. 356), an excellent application.

The internal treatment is, in weak children and feeble elderly persons, a spoonful of cod-liver oil three times a day, and ten drops of the tincture of iron in water, after each meal. When the patient is otherwise robust, a somewhat low diet and an occasional cathartic will be required.

Ringworm is quite common in children. Several different diseases are called by this name, but the one we have reference to appears as a small circle of watery pimples, which extends, and leaves in its centre a dry, branny surface. When it first appears it may be checked by bathing the part frequently with vinegar in which a piece of blue vitriol has been dissolved, or painting it with tincture of cantharides. Later, the oxide of zinc ointment is to be applied. Scratching should be avoided. Attention to the general health is called for when ringworms appear often.

2. Those with a dry, pimply or lumpy surface, without discharge.

This class is next common to the first one. It embraces those ailments whose common names are, nettle rash, prickly heat, hives, dry hives, pimples, wabash scratches, camp itch, soldier's itch, ground itch, night itch, winter itch, grubs in the face, or black heads, rose, rose rash, wind pox, barbers' itch, beard itch, tetter.

The medical names it includes are, urticaria, roseola, acne, lichen, prurigo, molluscum, sycosis.

Most of these complaints are characterized by more or less itching and prickling, and this is the symptom which the patient particularly wishes abated. For nettle rash, or hives, bathing the part in hot mustard water is often sufficient. The "cooling sal-ammoniac wash" (p. 355) is a valuable application. Bathing with dilute vinegar also gives relief. For camp or ground itch, the parts should be rubbed thoroughly with common soft soap, every night, for three nights, which should be well washed off the next morning, and the oxide of zinc ointment (p. 356) or the lead ointment (p. 354) gently rubbed in. The internal treatment and diet should be the same as given for the previous class of ailments. Grubs on

the face may be removed by washing repeatedly with ether, or with water somewhat strong with washing soda, or with a tablespoonful of alum in a basinful.

Barbers' Itch is the development of pimples and pustules in the beard and whiskers. Each pimple, if examined, will be found to have a hair passing through it. There is but one way to set about curing this troublesome and disfiguring disease, and that is as follows: Remove the crusts by oil and poultices. Cut the beard short with scissors. Then pull out every hair that is seen to come from a yellow point or pimple. A small forceps should be used for this. When this is completed, rub thoroughly with the following ointment:—

Take of Flowers of Sulphur,	one scruple.
White Precipitate of Mercury,	one scruple.
Carbolic Acid, pure,	ten drops.
Fresh Lard,	one ounce.

Mix well.

Repeat this treatment, plucking out the hairs, as directed, and continue as long as there are any yellow points. Do not shave for at least six months after the disease has left.

3. Those which have a dry, scaly surface.

Of these, the public has familiar names for dandruff, dry tetter, scaly tetter, chapped hands, cracked lips, leprosy.

The treatment in most of the cases of these diseases is by cleansing the surface well with a wash of common soft soap and warm water, and then anointing the part with some mild, slightly stimulating ointment, one of the best of which is the camphor ointment, given p. 356.

4. Those caused by insects in or under the skin.

First, we shall speak of the *true itch*, scabies or psora. This is a very contagious disease, caused by the burrowing of the itch mite under the skin. The irritation it causes gives rise to a little pustule, which is soon broken by scratching, and the fluid escapes and dries into a crust.

The most successful mode of dealing with an ordinary case of scabies is as follows:—The patient before going to bed should soak for an hour in a warm bath, and scour himself well with soap and flannel; when thoroughly dry, he should rub in plenty of simple

sulphur ointment (p. 356), all over his body, arms, legs, hands, and feet, but especially between the fingers and toes, and on the flexed side of the limbs. He should then put on a long pair of drawers, gloves, and socks to prevent the ointment from rubbing off, or a long night dress, gloves, and socks will answer the purpose tolerably well. He should then go to bed for ten or twelve hours. If it is important that the smell of sulphur should be removed during the day; he may take a warm bath in the morning, and then follow his usual occupation. At night, the process should be repeated. A third application is sometimes, but not generally necessary, provided the ointment has been thoroughly applied in the first instance, and in sufficient quantity. A single application is usually sufficient if the ointment, after being well rubbed into every part of the body, is allowed to remain undisturbed for twenty-four hours.

Lice. These disgusting insects are easily transferred from one person to another, and give rise to much irritation and even eruption of the skin. Sometimes they breed with inconceivable rapidity, especially on dirty or broken-down subjects.

The treatment is simple. The clothes should be baked, for washing alone will not kill the insects; a warm bath should be taken, and the skin anointed with stavesacre ointment (one drachm to one ounce). Flannel should be discontinued next the skin until the eruption is well. A strong tea of tobacco and mercurial ointment also destroy them.

The louse which frequents the hair differs from that found in the clothing. It can be destroyed by the same measures.

The crab-louse occurs in the hair on the trunk, under the arm-pits, etc. He is exceedingly tenacious of life. Mercurial ointment, or calomel rubbed in, is generally sufficient, however.

Flea Bites sometimes give children and those of tender skins the appearance of having a skin disease. These pests can be driven away by sprinkling the under-clothes with carbolic acid, or oil of peppermint.

5. Those in which the skin is permanently discolored.

Such are moles, mother's marks, liver spots, Saint Anthony's fire, rose rash, tan, freckles, white spots, red nose, sunburn, face blotches, bronzed skin, India ink marks, nitrate of silver stains, tattooing, etc.

They arise from the various causes their names denote, and some are hereditary. Though classed as diseases, they are more properly disfigurements. Some of them, as mother's marks, moles, and India ink marks, require careful surgery to displace. Those which may be treated by simpler means will be found considered, with the receipts appropriate for their removal, on pages 365, 366.

Diseases of the Hair.

The most usual diseases of the hair are falling, eczema, dandruff, also seborrhœa.

Falling of the Hair, or alopecia, without obvious reason, generally depends upon want of vigor in the scalp, and can be remedied by stimulating applications. We give, later in this work, the recipes for a number of well-tried hair tonics, which are appropriate in these cases (pp. 363, 364).

Eczema of the Scalp. This is shown by a moist, watery discharge on the scalp. It dries up, forms scabs, and mats the hairs together. One form of scald head, in children, is of this nature. Its treatment should be that given under the first class of skin diseases, to which it belongs.

Dandruff is the well-known dry, branny scurf, which many persons show on their coats and in their hair. Its cure can usually be accomplished by washing with soap and warm water, and then, when dry, rubbing in the ointment No. 188, p. 356.

Seborrhœa has thicker, more solid, and coarser scales than dandruff. It is a frequent cause of early baldness in adult life. Often, the scalp itches considerably and is sore to the touch. The treatment is to rub well with oil, and wash with soap, to remove the crusts, which will have to be done more than once, as a rule; then, to rub the scalp three times a week with a wash of soft water, containing a teaspoonful of carbolic acid to the pint; and finally, anoint the roots of the hairs carefully with a mixture of equal parts of zinc ointment and white precipitate ointment, which can be had from any druggist.

Scald Head. This, called by physicians *tinea*, is a contagious disease, found chiefly on the heads of children, and is caused by the growth of a vegetable fungus. In its early stages, it is charac-

terized by the formation of little sulphur-colored and cupped crusts; these coalesce, and form yellow masses of a honey-comb appearance, and having a peculiar smell, as of mice. The disease is of a very chronic character.

The treatment consists in destroying the vegetable parasite. For this purpose, a strong sulphurous acid lotion, of one part of the acid to one or two of water, should be continuously applied, under oiled silk, to the diseased surface, and kept constantly moist; the crusts, when softened by this application, should be from time to time removed; this constitutes the first part of the treatment. The second consists in pulling out the hairs of the affected part, and using the ointment given for barbers' itch.

Diseases of the Nails.

Hang-nails. The loose fragments of nails which bear this name should always be carefully removed, as they may, by their irritation, produce felons, and other inflammatory troubles.

Ingrown Nails. These usually are found on the toes, especially the big toe. They are very painful and obstinate. To heal them, the middle of the nail should be scraped with a piece of glass until it is quite thin. Then the edge which has grown under the flesh should be gently but firmly pressed upward by inserting under it a roll of lint or soft cotton. The raw edge of the flesh should be fastened down, away from the nail, with narrow strips of adhesive plaster, and a loose shoe be worn. Perseverance in this plan will effect a cure.

Miscellaneous External Affections.

We now throw together, under an alphabetical arrangement, the treatment of several external ailments, in addition to those mentioned above, which will be looked for under this heading.

Blisters, or blebs on the skin, are sometimes raised by handling irritating substances, animal or vegetable, as Spanish flies, potato bugs, parsnip leaves, poison oak, and from burns, quick lime, the sun's rays, and so on. The rule is not to open them, but to pass a needle through them, carrying a white woolen or loose cotton

thread. Then cut off the thread each side of the blister, leaving the part between the cuts in the bleb. The fluid will drain out, and the surface skin promptly unite with that below it.

In *blisters of the feet*, from walking, and of the hands, from rowing, the same method is employed.

Blood Blisters rise on the skin when one of the small skin blood-vessels is broken. If not the result of an accident, they are often the sign of bad health, and point to the necessity of a good diet, tonics, cod-liver oil, and change of air.

Boils or Furuncles. These are great pests to some people, and many ways are suggested to "backen" them. The best is to apply heat as soon as there is any sign of one. Hot water, long continued, will often succeed. When matter has once formed, warm poultices should be applied, and the boil opened with a sharp knife, so that the core can loosen.

When a person has crop after crop of boils, it is a sign of enfeebled health. Peruvian bark or quinine should be taken with iron (see pp. 360, 361).

For a *blind boil*, which is a dull, obstinate sore, opening with a knife, and poulticing, is the proper treatment.

Bunions are hard, tender swellings, which appear on the ball, the outer portion of the second joint of the big toe, or on the insteps. Tight or short shoes produce them. A loose, but well-fitting and flexible shoe must be worn, and the swelling painted, several times a week, with tincture of iodine or a weak solution of carbolic acid.

Carbuncle. This is a large and malignant boil, very painful, and even dangerous, as it indicates a low state of health. It is flat and firm, with a crust with several imperfect openings, from which the matter passes out. This, and its size, and the intense pain accompanying, distinguishes it from a common boil. At times it is infectious, induced by the reception of an animal poison (from cattle) into the system. This is called "malignant pustule."

How Treated. The only efficient plan of treating a carbuncle is to divide it crosswise, with a sharp surgical knife, early in its course, and then poultice it steadily. The system should be kept up with tonics, and stong, nourishing food, with ale or porter.

Corns. The cure of these common annoyances is easy, but troublesome. The foot should be thoroughly soaked in warm water, and all of the corn removed with a dull penknife, but no pain should be produced. When this is felt, it is a sign that the knife is going too far. Then the little cavity should be surrounded with flat rings of wash leather, or felt, or corn plaster, leaving a hollow centre. A drop or two of sweet oil should be placed in this, and the foot clothed in a soft stocking, and a loose, easy shoe. This process, repeated twice or three times a week, for a month or two, will cure a corn; but it will return if tight, ill-fitting shoes are resumed.

Felon, or Whitlow. This is a very painful inflammation of the finger, arising from a bruise, from the entrance of a needle or splinter, a hang-nail, or other irritant. When milder, it is called a "flesh felon;" when severe, affecting the bone, a "bone felon." The former begins generally at one side of the root of the nail, or in the bulb of the finger end, with redness, swelling, and a throbbing, burning pain, shooting up the hand and arm.

These symptoms are very much increased in severity in the second variety. The patient holds his hand up, as the pain is more acute when it is dropped. The appetite suffers, and sleep is disturbed or prevented.

At the outset, a felon may be backened, at times, by holding the hand for a half-hour in water as hot as may be borne, and then wrapping it in a large hot poultice. After this is done, leeches may be applied, so as to draw blood freely from the part. These measures failing, the next measure, which should not be delayed, is to open freely the swelling, with a sharp knife, cutting, in a bone felon, fully to the bone. This, alone, will prevent the danger of having a stiff, mutilated, and useless finger for a lifetime. After the incision, poultices and warm water dressing will complete the cure.

Goitre, Derbyshire neck, or swelled throat, is a deformity common in mountainous countries. Its cause is not ascertained. The swelling is in front and at the base of the neck. It is painless, but is unsightly, and may become troublesome by pressure on the wind-pipe and large blood-vessels. When of many years' standing, it cannot be cured; but when comparatively recent, rubbing with the

following ointment, three times a week for several months, will cause it to disappear.

Take of Iodide of Cadmium,
Fresh Lard,

one drachm.
one ounce.

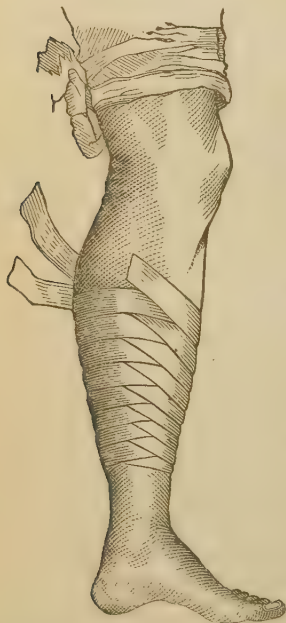
Mix. Rub in a portion the size of a small pea.

Goitre is liable to return, however, unless a change of residence is adopted.

Sores and Ulcers. Cold sore, leg sore, or indolent ulcer. These are names given to those obstinate sores, or issues, that come on the legs of persons, especially those in advanced life, whose systems are below par, and who have suffered from swollen veins, rheumatism, frosted feet, and similar troubles. They are not very

Fig 58.

painful, but are foul, debilitating, and difficult to heal.



Bandaging a Leg with Adhesive Strips

The treatment is local and internal. Good hygiene, great cleanliness, pure air, nourishing, simple diet, and iron or cod-liver oil, daily, are essential. Then locally apply the carbonate of ammonia ointment, given on page 356, taking care to wash the sore by a stream of warm suds from castile soap. This done, cut long strips of sticking plaster about a half inch wide, and long enough to go once and a half round the limb. Applying the middle of one of these to the opposite side of the limb from the ulcer, the two ends are brought forward across this with a firm pressure, so as to bring together, as much as may be, the edges of the sore. A number of straps, so applied (leaving places for the matter to escape), completes the dressing.

This should be repeated once or twice a week. This method of bandaging a leg is shown in Figure 58.

Sweating, excessive. Persons of a stout habit occasionally suf-

fer from excessive perspiration, which, though it may not be injurious, is disagreeable. It may be diminished by avoiding warm baths, changing the underclothing frequently, and sponging the body with a lotion consisting of two teaspoonfuls of dilute sulphuric acid, in a quart of water. The skin, when dried, should be powdered with starch or pulverized asbestos.

Fetid, or Foul Feet, from excessive sweating, are a great annoyance to some. Benefit in such cases will be derived from bathing the feet, night and morning, with a mixture of half an ounce of tannic acid in a pint of cologne water, drying, and powdering with starch or dry tannic acid.

Warts. These ugly excrescences are best dispersed by rubbing them, night and morning, with a piece of muriate of ammonia (sal-ammoniac), moistened with water.





CHAPTER VI.

ACCIDENTS, INJURIES, AND POISONS.

GENERAL DIRECTIONS FOR TREATING ACCIDENTS, BANDAGES, SPLINTS, AND DRESSINGS.—*Bed Sores.* Bites: of Mad Dogs—Hydrophobia, Rabies—of Snakes, Spiders. *Bleeding or Hemorrhage:* from Wounds—from Nose—from Large Arteries. *Blows:* Wounds from. *Bones:* Broken—Out of Joint—(fractures and dislocations). *Brain:* Compression and Concussion of. *Bruises:* Blows—Contusions. *Burns and Scalds:* Scars from. *Cuts.* *Drowned:* To Restore. *Fainting and Faint Spells.* *Falls:* Hurts from. *Frozen Persons:* to Restore—Frozen Limbs—Chilblains—Frost Bite. *Railroad Injuries:* Spinal Shock. *Rings:* to get off. *Ruptures, or Hernia:* Trusses. *Scars:* from Wounds—Burns—Small-Pox. *Shock:* Sprains and Strains—Stings of Insects. *Stroke:* Sun-stroke—Heat-stroke Sun—Headache—Sun Pain—Lightning Stroke. *Suffocation and Strangulation:* Choking, or Asphyxia, Suspended Animation—from Hanging—from Fixed Air—Well Damp, or Carbonic Acid Gas—from Charcoal Fumes—from Common Burning Gas—from Coal Gas and Choke Damp. *Teeth Knocked out.* *Things:* in the Eye—in the Ear—in the Nose—in the Throat—in the Lower Bowel—in the Flesh—Needles—Pins—Fish-Hooks. *Veins:* Swollen—Bursting of. *Wounds:* How to Dress—Bandages—Gunshot Wounds—Torn Wounds—Cuts—Stabs and Thrusts—Cut Throat—Scalp Wounds. *Passive Movements:* For Wounds and Injuries—Illustrations of.

POISONS AND POISONINGS—*General Directions:* Alcohol—Aconite—Ammonia—Antimony—Arsenic—Baryta—Belladonna—Bismuth—Bitter Sweet—Camphor—Copper—Corrosive Sublimate—Digitalis—Iodine—Iron—Lead—Mushrooms—Nitrate of Silver—Opium—Oxalic Acid—Poison Ivy, or Vine—Prussic Acid—Phosphorus—Savine—Stramonium—Strychnia—Tobacco. Laying out the Dead.

GENERAL DIRECTIONS FOR TREATING ACCIDENTS.

When a person witnesses an accident, his duty is to render immediate assistance. And if he is not wanted for this purpose, to go about

his business forthwith, and not to form one of a gaping, staring crowd. What a person who is hurt needs first, is *plenty of air*. He should not be surrounded by many persons, and if in a room, the windows should be opened. There should be no hurry nor rudeness in *moving* him. Often ill-directed attempts to do so materially aggravate his sufferings, and the danger from the injury.

If a person has been thrown from a carriage, injured by a fall from a height, blow, or other cause; while there may be no fracture, or other *external* injury evident, the nervous system has received what is called a "shock." As is commonly said, the person is "faint."

A person situated with such symptoms, should, if possible, be placed flat on the back, with the head, neck, and shoulders *slightly* raised. The limbs, at the same time, should be straightened out, if practicable, so that the heart, already feeble in action, may act at as little disadvantage as possible. The cravat, collar, and everything else calculated to in any way impede the circulation toward the head, or the movements of the chest, should be loosened or removed. If the injury is slight, reaction will soon come on after giving the person a sip of cold water; spirits and water (teaspoonful in tablespoonful of cold water every couple of minutes), or aromatic spirits of ammonia (twenty drops in a tablespoonful of cold water) every couple of minutes. Gentle frictions to the extremities, a few drops of cologne water on a handkerchief, to the nostrils; if the weather is hot, the use of a palm-leaf fan; hot flannels to the limbs and pit of the stomach, are all likewise useful in assisting reaction.

BANDAGES AND DRESSINGS.

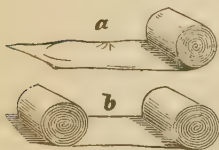
Every one should be prepared to give at least the first attention to severe accidents. To do this properly, they should know something about *roller bandages*, *splints*, and *simple dressings* for wounds.

A roller is made of stout white cotton cloth, about three fingers wide, and of any desired length.

It is generally rolled from one end only, and is then called a

single-headed roller (*a*). But if it be rolled from both ends, so that the rolls meet in the middle, it is a *double-headed roller* (*b*); this is not, however, often used, as it is not very convenient.

Fig. 59.

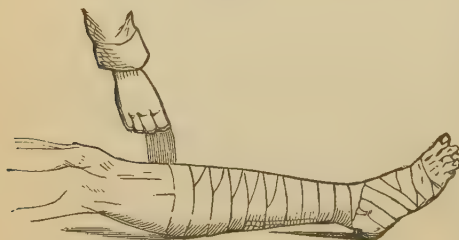


A Roller Bandage.

For those who have the opportunity of having assistance, a roller can be better applied by an attendant than by themselves. But such as prefer being independent may soon learn to put on their roller very well. The foot as well as the leg should be rolled, and the rolling should be begun at the toes and finished just below, or what is much better, immediately above the knee.

How to Bandage a Leg. Presuming the person is right-handed, he will take a single-headed roller in his right hand, holding its circumference between his thumb and fingers, and laying its loose end on top of the foot at the root of the toes, he fixes it there with the thumb of the left hand whilst the roller itself is carried beneath the sole and round the foot, and twice or thrice round in the same place till it get a good hold on the foot. The roller is then to be turned round and round the foot towards the heel, each turn half

Fig. 60.



Bandaging a Leg.

covering the former one, and as the roller passes beneath the foot, it is delivered from the right to the left hand, and then as it passes over the foot, from the left to the right hand. Having arrived at the instep,

the roller is now carried round the ankle, made to descend to the opposite side of the foot from which it had been brought, passed beneath the sole, and then carried round the ankle again, thus forming a figure of eight, one loop containing the foot, the other the ankle-joint, and the gripe of the loops on the instep; this figure-of-

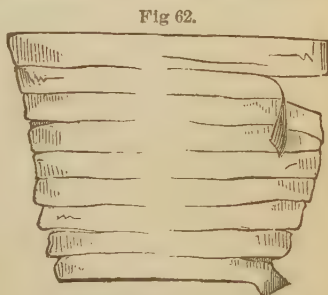
eight turn generally requires twice making to give the roller a good start up the leg. The roller is now turned round the leg, each turn half covering the former, and delivered from hand to hand alternately, from within to without or from without to within, according to which leg is being rolled. When all is wound, the end is to be securely pinned.

On rounded parts of the body, as the head, buttocks, etc., it is not easy to apply any sort of roller bandages. When it is desired to protect such portions, a square bandage may be cut into the form of a Maltese cross. Its four arms will then fold down smoothly one over the other, and the whole may be fastened by adhesive strips. The pattern of such a bandage will readily be understood from Figure 61.



A 4-tailed Bandage.

Sometimes, when a leg or thigh is broken and much injured, it is desirable to renew its bandage without lifting the limb. This is accomplished by a simple and ingenious device known as the many-tailed, or Scultetus bandage. A number of single strips, of the width of the ordinary roller, are laid adjacent, as shown in Figure 62, and upon these the limb is laid. The ends of each strip are then brought to the front of the limb, folded, and fastened. Any single strip can then be replaced, without lifting the limb, by pinning one of the same length to its end and drawing it under the limb.

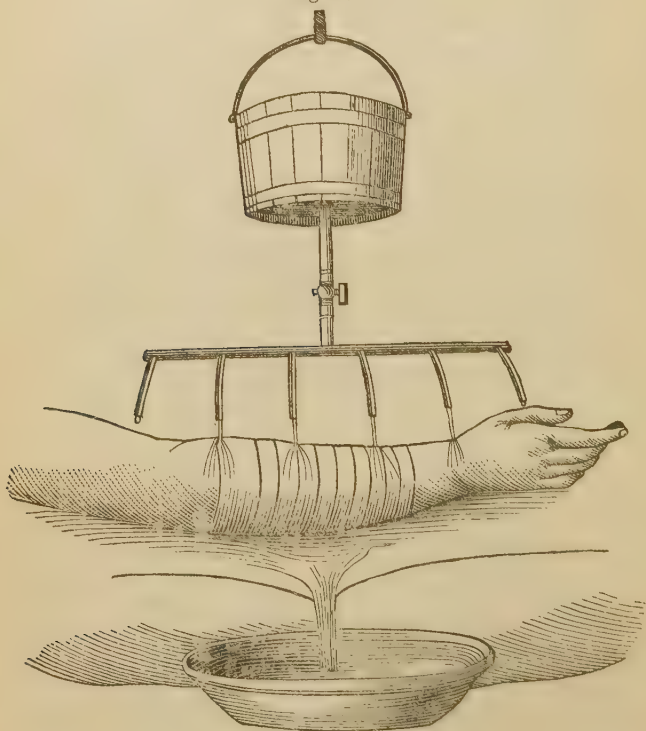


A Many-tailed Bandage.

Of all applications to a broken or much injured limb, water, hot or cold, simple or medicated, stands first in importance. Everybody should know how to keep a limb constantly moist, and constantly at the same temperature. This is called irrigating a limb. The very simple apparatus shown in Figure 63, which can be easily constructed, answers the purpose admirably. A small bucket

is suspended from the ceiling. A pipe, with a number of small apertures, is fastened to its bottom. The flow is regulated by the stop-cock. The bed is protected by a rubber cloth. And thus the limb is constantly bathed in a gentle stream of fluid of any required temperature. No treatment is more efficacious to reduce swelling, prevent inflammation, and hasten recovery. The general rule is, that the temperature of the fluid be that *most agreeable to the patient*.

Fig. 63.



Irrigating a Limb.

We shall now mention, in alphabetical sequence, the most common accidents and injuries, with their appropriate treatment.

Bed Sores. These sores are apt to come on projecting points

of the body of a patient who is long confined to bed. The following directions will generally prevent their recurrence :—

1. The under sheet should be kept smooth and free from wrinkles or crumbs.

2. The patient should be kept as dry as possible, all discharges being cleared away frequently.

3. The position of the patient should be varied as frequently as possible.

4. The back should be examined daily and washed with a strong solution of spirits of wine, and, after having been thoroughly dried, should be dusted with flour starch or powdered oxide of zinc.

5. When any indication of redness appears, the patient should be supplied with a water or air cushion, or the part should be covered with some thick felt or amadou plaster, having a circular hole corresponding to the inflamed spot.

When they have come, they must be treated as we shall describe under wounds.

Bites. The bite of a dog is a common accident, and always deserves the most prompt and energetic attention, as there is always a possibility of madness, hydrophobia or rabies. Even angry dogs are said to communicate the disease sometimes by their bites, and the same is asserted of the common skunk or pole-cat. The same precautions should be used in every case as if we knew the dog was mad. If these precautions are thoroughly and immediately applied, there is *not the least danger*, even from the bite of a really mad dog. There are *four* things to do, and we give them in the order in which they should be done:—

1. *Ligation.*—Tie a string *tightly* between the part bitten and the body. This can always be done when it is a leg or an arm which is bitten, as is usually the case. It is to prevent the poison from being absorbed into the system.

2. *Washing.*—Wash the wound *thoroughly*, pouring abundance of water on it from a height, or hold it under a full stream from a pump or hydrant.

3. *Suction.*—Rinse the mouth and suck the wound as hard as possible, and for fifteen or twenty minutes, spitting out the blood, etc., which flows.

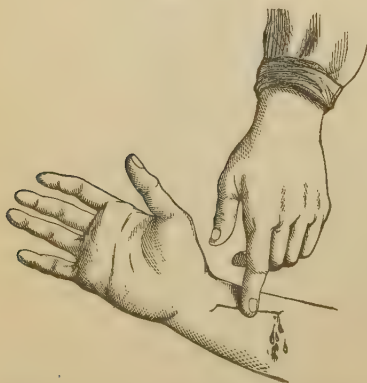
4. *Burning*.—The wound should finally be cauterized or burned. Carbolic acid, and nitrate of silver, or lunar caustic, are the best for this purpose. But nitric or sulphuric acid will answer, or a red-hot poker, or live coals. It is no time to be timid about the means.

When these are done, put a light poultice on the wound, keep quiet until the slough comes off, and dismiss the matter from the mind, for all danger is past.

For bites of rattlesnakes, vipers, moccasins, tarantulas, spiders, and other poisonous serpents and reptiles, the same four precautions are to be taken. Often the poison so exhausts and depresses the system that stimulants are required. Spirits may be given, or, what is better, spirits of ammonia, twenty or thirty drops in water every quarter of an hour, as required.

Bleeding, or Hemorrhage. This always accompanies wounds, and is generally most alarming to bystanders. There is no occasion for fright, as people do not bleed to death very quickly. Retain your presence of mind, and remember that *three* things are to be done, all of which you can do at once. Take time to notice the color of the blood. Blood from the arteries is a bright red color, and bursts out in spurts, while venous blood is a purple red, and flows in a steady stream.

Fig. 64.



Pressure to Check Bleeding from the Forearm.

The three steps you can take to stop the blood are:—

1. *Pressure*.—Should an *artery* or branch have been divided (indicated by a *spurt- ing* of a spray of bright blood at each beat of the heart), the firm pressure of the finger for some time, to the point of division, should be used, to diminish the size of the vessel at that point, until a clot is formed there.

Sometimes, pressure to the supposed seat of the injured

vessel does not *reach* the artery. In such a case the pressure must be used to some known trunk between the original supply of the blood and the injured branch. Thus, if the finger or the toe is the seat of the arterial hemorrhage, firm pressure applied each *side* of the finger, close to the hand (as in the cut), or toe, close to the foot, compresses the arteries passing along to be distributed to the extremity. If the hand or foot is the seat of the injury, pressure on the wrist, over the point where the artery is felt for the "pulse," or at the inside of the ankle, will materially retard the passage of the blood beyond those points.

Fig. 65.



Pressure to Check Bleeding from Finger.

2. *Position*.—The part from which the blood comes should be raised above the rest of the body, and if the patient become faint he should not be roused immediately, since faintness acts as nature's remedy by lessening the force and activity of the flow of blood.

3. *The Application of Cold*.—This plan answers best when the bleeding is from several points scattered over a large surface; it is conveniently applied by letting cold water drip from a sponge upon the bleeding points, or by the application of ice in a rubber bag, or bladder.

When these immediate measures have been used, there is time enough to use what physicians call *hemostatics*, to stop the blood. Gallic acid is a cheap and convenient one. Still more handy is alum. Either may be dusted on the part in powder, or poured over in solution. Or the wound may be touched with nitrate of silver, or tincture of iron. But these measures are needless in ordinary cases. Sometimes, when a tooth is drawn, and the blood will not cease running, a piece of cotton, dampened with alum

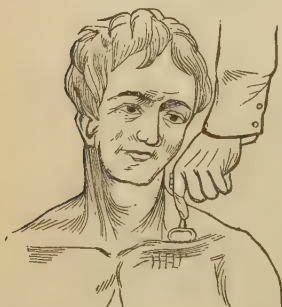
water, or sprinkled with alum powder, and applied, will check it promptly.

Bleeding from the Nose. Bleeding from the nose is seldom serious, and may generally be controlled by the application of a little cold water. The patient should be kept upright, with his head thrown back and his hands raised above his head. Ice to the back of the neck is useful. If very obstinate, throw up ice-water, or a solution of gallic acid, with a syringe.

Bleeding from Small Arteries. This can generally be stopped by firm and constant pressure *on the point* whence the blood spurts, as above described. If a forceps is at hand, *torsion* may be used. The end of the bleeding artery should be caught and twisted five or six turns, *without pulling*. Even quite large vessels will cease flowing if this is carefully done.

Bleeding from Large Arteries. When one of the large arteries, which carry the bright red blood from the heart, is cut, there is required more active treatment. This is, *to compress the main trunk of the artery, higher up, by the fingers, a strap and pad, or a tourniquet*. We shall show how this is to be done in the various limbs.

Fig. 66.

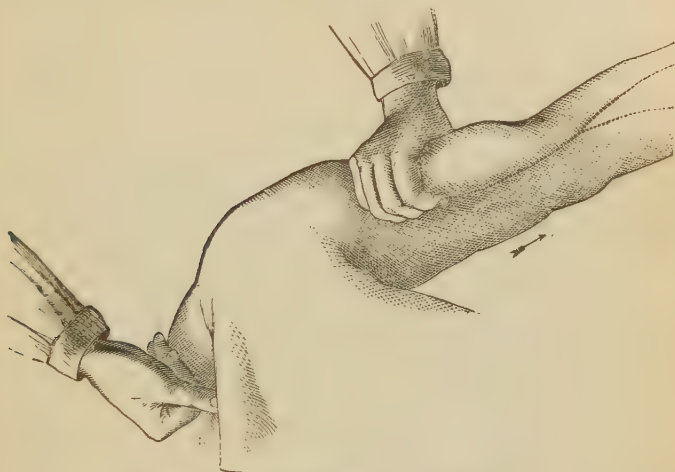


Pressure to Check Bleeding at the Armpit.

If the bleeding be from a wound in the arm, near the armpit, in which case nothing more can for the moment be done, a bystander should press his thumb firmly into the neck, behind the middle of the collar bone, which will stop the flow of blood through the great artery of the arm as it is first coming out of the chest. As, however, the pressure thus made soon tires the thumb, the handle of a door-key, wrapped in three or four folds of linen, may be pressed behind the middle of the collar bone, and held without fatigue for almost any length of time, till proper assistance can be obtained.

When the wound is below the armpit, about the elbow, the pres-

sure should be directed as shown in Fig. 67. The cut also shows
Fig. 67.



Pressure to Check Bleeding in Upper Arm.

where pressure by the thumb can be used to check bleeding near the armpit.

The arm and forearm, with dotted lines, indicate the course of
Fig. 68.



Handkerchief Tourniquet on the Arm.

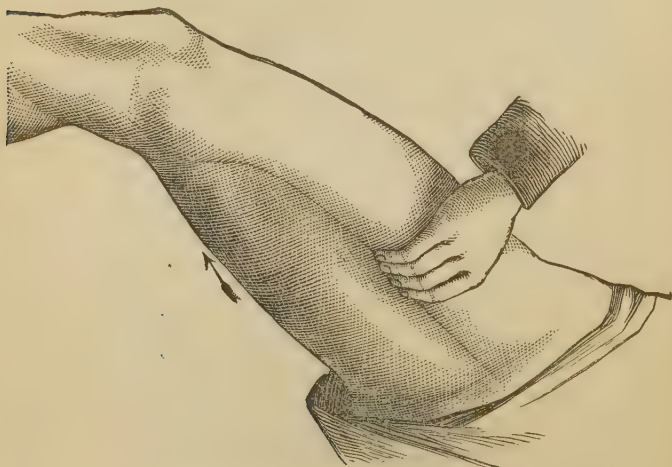
the arteries, and points at which pressure can be most judiciously applied.

The arrow points the course of the current of the blood of the artery, from the heart to the extremities.

Permanent pressure is exerted by means of a temporary tourniquet to the artery of the arm. A common folded handkerchief, with a firm, sharply-defined knot tied at the middle, a long strip of muslin torn from a shirt sleeve, or a suspender, with a suitable knot in it, is rather loosely tied around the arm, and the slack taken up by twisting with a cane or stick until the knot, kept over the vessel, exerts enough pressure to prevent the passage along it of the blood.

The method of exerting pressure by the fingers along the course of the artery of the thigh, between the wound and the heart, is shown in Fig. 69.

Fig. 69.

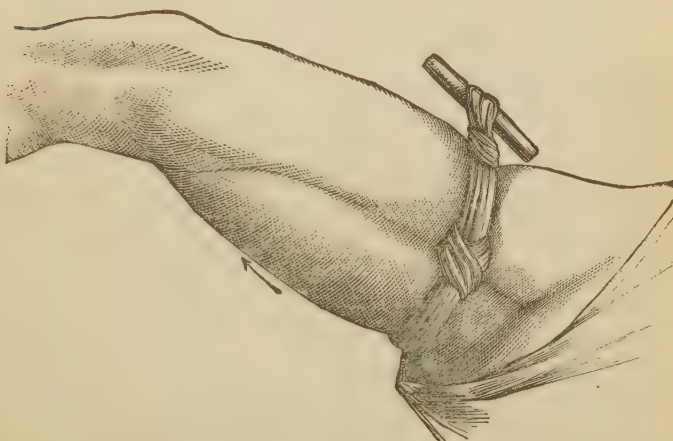


Pressure on the Artery of the Thigh.

Sometimes it is easier to find the artery nearer the surface, at a point along the dotted line, or a little higher up towards the groin. The two thumbs, placed together, furnish firm resistance; and a blunt stick, suitably protected, will often answer to keep up the pressure until a tourniquet can be extemporized.

Fig. 70 represents the tourniquet made as directed for the arm, by getting a large, firm knot in a handkerchief, or anything else of the kind. A small pebble has often been introduced for the purpose, into the knot, with success. Twist the ligature with the leverage obtained by passing under it a cane or stick.

Fig. 70.



Handkerchief Tourniquet on the Thigh.

Get the knot over the artery, keep the knot there, and tighten until the pressure of the knot closes the vessel.

Bones, Broken or Fractured. Splints is the name surgeons give to the apparatus used to place along the broken fragments, to keep them in position. They are made of wood, rubber, leather, binders' board, tin, and many other materials. For general use those manufactured of stiff felt are the best. They come in sets, and are readily moulded, when hot, to any limb, and are firm and soft when cool.

In instances of suspected fracture or dislocation of the thigh or leg, the injured parts should be placed in a comfortable position, and as well supported as possible, to prevent the *twitchings* of the leg from the spasmodic action of the muscles of the injured extremity. If necessary to remove the patient to his home or the hospital, from the spot where the accident happened, the arrangement of the

limb should be made after he has been placed on the stretcher or substitute.

Fig. 71.

**Temporary Bandage for Fractured Limb.**

If found necessary to carry the injured person some distance, and a litter for the purpose cannot be had, the arrangement of the fractured limb against the other, and kept there by handkerchiefs, as shown in the cut (Fig. 71), is often of great comfort to the sufferer.

By a little ingenuity a comfortable litter can be made by fastening four stout poles together, and tying a blanket securely to them,

Fig. 72.

**A Convenient Litter.**

so as to resemble the frame and sacking of a bedstead, and upon this the sufferer may be laid. Hand-carriage is infinitely more easy than carriage or cart, for every jolt over any irregularity in the road produces motion in the broken bone, and correspondingly severe pain.

This should be carried by hand, two persons at each end taking hold of it, and all keeping step as they move along.

We shall now describe particular fractures, which may be either simple, compound, or comminuted.

Simple. When a bone is broken in one place without any external wound.

Compound. When a bone is broken in one place, and there is an external wound leading down to the broken bone.

Comminuted. When a bone is broken in two or more places, as when a splinter of bone is broken off.

Skull. Put the patient in bed, and let his head be shaved for some distance round the seat of injury, and wet lint with gutta-percha tissue applied over it.

Lower Jaw. In this fracture the parts of the bone should be replaced in their natural position, the mouth closed, and the face bandaged so as to retain the fragments in place. The patient should be fed by a tube, which can be inserted where he has lost a tooth. Broth and milk must be his diet until the bones knit. A dentist can easily make a splint of rubber to fit inside the mouth, and thus hold the parts in position at less discomfort.

Collar-Bone. Keep the patient in bed, without a pillow, with the arm on the injured side folded across the chest. The further treatment consists in placing high up in the hollow of the armpit a pad, about as big as two fists, and twice as wide, which must be kept in place by a tape at each end, passed one on the back, and the other on the front of the chest, and tied on a pad (to prevent galling) on the opposite side of the neck. A bandage is next to be turned once or twice round the arm, immediately above the elbow, and its two ends carried round the chest, one before the other behind, and tied so as to keep the elbow close to the side. The elbow and forearm are then put into a short sling, which lifts up the shoulder, and should be tied on the neck on the sound side. This done, all deformity disappears, and the bone is set. The bandages thus put on must be worn about a month.

Fig. 73.

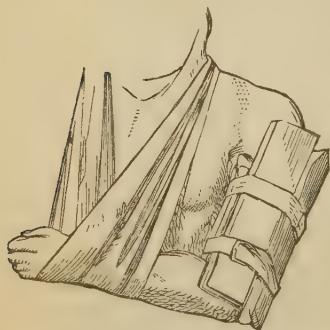


Bandage and Sling for Collar-Bone Fracture.

Ribs. The patient should remain in bed, and a special rib bandage or flannel roller, six yards long and six or eight inches wide, be put round his chest; a spittoon should be placed within his reach, and the character of the expectoration noticed.

Broken Arm Above the Elbow. The pads and splints must be fitted on the sound arm before they are placed on the injured limb, and four of each will be required. The splints should be about three fingers' breadth wide; one should reach from the shoulder to the bend of the elbow; one behind, from the shoulder to the point of the elbow; one from the armpit to the jutting inside of the elbow; and one from the shoulder to the jutting outside of the elbow. The pads should be a little wider than the splints, and about two inches longer, so that they may be turned over each end of the splint, and tacked to prevent them slipping out. Two long rollers are also needful. The immediate swelling after the accident having subsided, the limb must be placed with the forearm bent at a right angle with the upper. The hand and arm are to be lightly swathed

Fig. 74.



Bandage and Splints for Fracture of
Upper Arm.

in the roller, the turns of which should overlap each other, and be continued a little above the elbow. The object of this is to prevent the swelling which generally follows the appliance of the splints. The second roller is now to be wound round the arm twice or three times, above the elbow; then the first splint is to be placed on the front of the upper arm, but not quite down to the bend of the elbow, and two or three turns of the

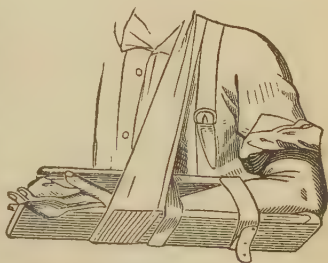
roller made round it; next the back splint from the shoulder to the elbow placed against the arm, and the roller carried round it twice or thrice; the third splint is now put on at the inside, its upper end being pushed up into the armpit, not so high, however, as to rub against and gall it; and the fourth on the outside; around these the roller is now to be wound, and continued till

the whole arm, with the splints, has been swathed from the arm-pit to the bend of the elbow. A short sling is then put round the neck, which must only support the hand and wrist. By thus doing, the weight of the elbow drags down the lower end of the bone, and keeps the broken portions in place. The splints rarely require being touched for ten days or a fortnight, and must then be again applied in the same manner. They must be worn a month or five weeks. There is no need of keeping the person in bed, and indeed it is advisable he should be up, as the broken bone keeps its position better than when in bed.

Broken arm Below the Elbow. There are two bones in the forearm, and when both are broken there is little difficulty in discovering the nature of the accident. But if only one be broken, it is not so easy for an unpracticed person to distinguish it; but this is of less consequence, as the sound bone serves for a splint to keep the broken one pretty nearly in its place, even though no splints be put on.

If both bones be broken, two padded splints are required, extending from the tips of the fingers to the bend of the elbow in front, and to the point of the elbow behind. The forearm is now to be bent on the elbow; the splints applied, one before and the other behind, and both bound firmly to the arm with a roller from the fingers up to the bend of the elbow. The arm then, resting on its back, is to be put in a sling, which shall support it from the elbow to the finger ends. The splints must be kept on about a month.

Fig. 75.



Bandage and Splints for Fracture of Lower Arm.

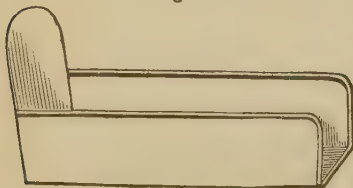
Broken Fingers. If the first or second joint of either of the fingers be broken, it is readily discovered; but not so easily if it be the third joint, which, however, is but rarely broken without more serious mischief.

A piece of thin wood or stiff pasteboard, as wide and as long as

the finger, is to be placed on its front, or same side as the palm of the hand. Upon this, the finger being laid straight, it is to be bound with a roller an inch wide from end to end. It is best to keep the hand in a sling for three weeks or a month, and not to attempt using it till after that time. The broken finger often remains stiff a long while after it has become well knit together; it is therefore a good plan to render the joints supple by thrusting the hand for half an hour daily into warm grains; but if these cannot be procured, soaking it for the same time in warm water, and afterward to bend the finger gently forward and backward, as far as it can be moved without pain.

Broken Thigh. If this accident occur in any part a little distant from the hip or knee-joint, it is easily ascertained by the unnatural bending at the seat of injury, and by the person being unable to lift up the leg below the broken part, as well as by his not liking to attempt it on account of the pain produced by the ends of the bone pushing into the flesh. This is a much more serious accident than either of those already mentioned, and is managed with difficulty by any but an expert surgeon. When none is near, the limb should be gently, but firmly, drawn down, so that the bones are restored to their natural position. The simplest plan is then to lay narrow bags, eighteen inches long and six inches in diameter, loosely filled with sand, along the outer course of the limb. Keep it constantly irrigated, and if it tends to become displaced by contraction of the muscles, a brick should be suspended to a rope passing over a pulley at the foot of the bed, and fastened by a string around the ankle. In nearly every case, no matter how well treated, there remains slight shortening of the limb and a limp in the walk.

Fig. 76.



Box for Broken Leg.

In fracture of the leg, below the knee, we also have either one or two bones, as in the arm below the elbow. Here, too, one may serve as a splint to the other. When the accident occurs, the patient should be put in bed, the limb gently brought

to its natural shape by the hands of the attendant, and then placed in a box, as shown in Fig. 76.

Between the sides of the box and the limb, sand bags can be laid, or, if there is an outer wound, bran or sawdust. A sling can be placed around the ankle, and passing through two holes in the foot-board, may be used to keep the leg in a firm and natural position. This fracture usually lays the patient up for six weeks.

Bones Out of Joint, or Dislocated. On pages 51 and 52 of this book, the reader has seen the different ways in which nature has connected the bones of the body. When this connection is violently separated, the bone is said to be "out of joint," or "dislocated." The signs of this accident are, *first*, a deformity, seen and felt, caused by the presence of the end of the bone in its new place; *second*, inability to use the limb which is dislocated; *third*, pain and swelling about the joint injured. Often, the limb has quite an unusual turn or twist, which at once reveals the trouble.

The *general rules* for treating a person with dislocation are, to convey them promptly to their homes, give some aromatic spirits of ammonia, or spirits, if there is much shock, place them in the most comfortable position, and then proceed, with due deliberation, to the setting or reduction of the bone. There is no hurry about this, and a day or two's delay, if the joint is protected and irrigated by cold water, is often more of a benefit than otherwise. Hence, if by such delay experienced help can be summoned, it should be sent for. When this help cannot be obtained, careful observance of the following methods, applicable to the more common dislocations, will be in order.

Dislocation of the Jaw. The *reduction or replacing* of a dislocated jaw, either on one or both sides, is very easily managed. The patient being seated on the floor, and his head resting against the operator's knees, who stands behind him, a couple of fork handles, or two

Fig. 77.

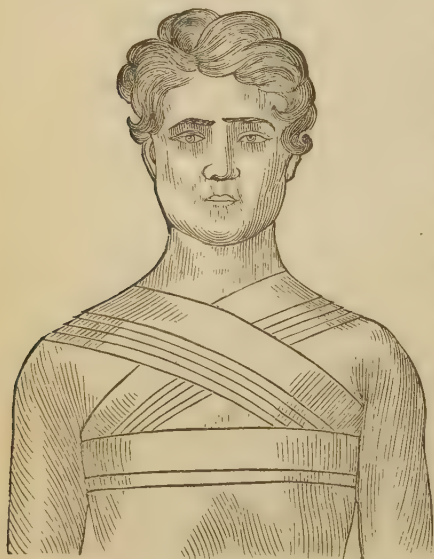


Reducing a Jaw out of Joint.

pieces of hard wood, about the same size, are to be passed into the mouth, one at each corner, and to be pressed back as far as they will go, between the back teeth on each side, and there held by another person. The operator then, bending over the patient, and passing his own fingers between one another so as to make a loop of both hands, places them under the chin, and pulls it up so as to close the mouth. As this is doing, the joint-ends of the jaw-bone are made to descend, and as soon as they reach the edge of their sockets, are pulled into place, and the dislocation is reduced. Care must be taken that the pulling up of the chin be made level, and that the forkhandles both retain their place.

Dislocation of the Collar-Bone. This is a troublesome and rather common accident. The head of the bone forms a protrusion over the upper part of the breast-bone. To restore it, the shoulder should be pressed upward, outward, and backward, and the end of

Fig. 78.



the bone pressed upward, with the finger and thumb, into its place. To retain it there, a bandage should be applied across both shoulders, and around the chest, the application of which will be more apparent from the opposite figure than from a verbal description.

This should be worn night and day, for five or six weeks. This accident is very apt to leave a deformity after it, in spite of every care.

Bandage for a Collar-Bone out of Joint

Dislocation of the

Arm at the Armpit. This is also a very common accident, and with some persons it occurs over and over again, with slight provocation.

The patient and the person who is to pull the arm into place both lie down on a sofa, or still better, upon the floor, on their backs, side by side, but in contrary directions, so that the feet of the one are at the shoulder of the other, on the side where the displacement is. The operator then, having taken off his shoe, and put a folded towel in the patient's armpit, puts his foot upon it, between the chest and the arm, using the right foot if the right shoulder be dislocated, and the left if the left shoulder. He then grasps the patient's wrist with both hands, and pulls the arm down steadily. At the same time he tells the patient to make some little change in his position, and thus inducing him to call some other muscles into action, the resistance to the reduction, which the muscles of the dislocated shoulder had been previously offering, is for a moment suspended, and at that moment the operator pulls a little more vigorously, and generally the bone immediately returns to its socket with a more or less loud snap.

Fig. 79.



Reducing an Arm out of Joint.

A person who has repeatedly dislocated his shoulder, may, if he have courage to bear a little pain for a few minutes, even manage, himself, to reduce it, if the accident have happened whilst he is out in the fields, and there be a five-barred gate at hand. All he has to do is to get his arm over the top rail, and then, having grasped the low-

Fig. 80.



Reducing an Arm out of Joint without Assistance.

est rail he can reach, hold fast, and let the whole weight of his body hang on the other side of the gate; and then, if he make some little attempt to change the position of his body, still, however, letting its weight tell on the top of the gate, the bone will probably slip into its place. The principle on which this is done is exactly the same as when the heel is put in the armpit and the arm pulled,

Fig. 81.



Reducing a Thigh out of Joint.

that is, to move the head or top of the arm-bone to the edge of its socket, below which, when dislocated, it had dropped, and this done, the muscles of their own accord pull it into place.

Dislocation of the Thigh at the Hip-joint does not so frequently recur after one displacement as the dislocation of the shoulder, just mentioned. Persons who have had dislocation of the hip two or three times are pretty much as well aware of it as those whose shoulder has been put out.

If there be tolerable reason for believing that the thigh is really dislocated, its reduction may be attempted in the same way as dislocation of the shoulder. At any rate, an attempt is worth trial. The patient and the operator both lie down on their backs, and assistants hold the hips of the former steady, so that they shall not sway about. The operator then puts his leg between the patient's legs and presses his foot close up to the fork, which must be protected with a towel; he then grasps the patient's ankle with both hands, and

pulls, bids the patient change his position a little, and, whilst he is thus engaged, pulls a little more briskly, and probably succeeds in replacing the bone, which goes in with a snap.

Dislocation of the Fingers and Toes. These smaller bones are readily recognized when they are put out of place. But it is not so easy to restore them as might be imagined. The figure given below shows very clearly how the index finger appears when dislocated at its third joint. Firm, strong pulling in the line indicated

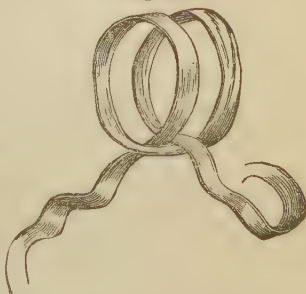
Fig. 82.



The Index Finger out of Joint.

will sometimes reduce it. But generally, to obtain a better "purchase," one has to use what sailors call the "clove hitch." A tape is folded as shown in Figure 83. This is slipped over the finger, the two ends are grasped with one hand by the assistant, while with the other he steadies the wrist of the patient and makes traction in the natural line of the finger. This method is further shown in

Fig. 83.



The Clove Hitch.

Figure 84.



Reducing a Finger out of Joint.

In *Dislocation of the Toes* the bone can be restored to its place by the same means.

Reduction of fractures, that is, "bone-setting," as it is popularly called, is always easier when the patient is under the influence of ether or chloroform. After it has been accomplished, rest and cold irrigation for a few days should be observed, and subsequently "passive motion" of the limb, which will be explained further on.

Brain, Concussion and Compression of. These are two varieties of injury to the brain, the latter more severe, and marked by the patient being perfectly insensible, and labored, snoring breathing. The former is a *stun*, the patient can be partially aroused, and his skin is cool.

In both cases, the injured person should be put to bed, cold applied to the head by ice bags, or cold compresses, the room kept quiet and dark, visitors excluded, and if he is much prostrated, hot bricks to his feet. So long as the pulse is steady, and the breathing natural, there is no danger. Do *not* give stimulants, or excite him in any way.

Fig. 85.



Cupping back of Neck.

In cases of compression of brain, there is much more danger to life than when it is merely concussed. Treatment, therefore, should be more active, and in its line, nothing yields better results than to take some blood at the back of the neck by cups, either wet, that is, those that are used to draw the blood externally, or dry, that is, where no cutting instrument is employed (see page 344). The location of the cups is shown in the above figure.

Bruises, Blows, or Contusions, are flesh injuries where neither skin nor bone is broken. Cold and rest are the applications for them at first. For the former, see p. 342. To forestall a "black eye," as soon as the blow is received, keep the part constantly wet with the spirit wash, p. 355, or the arnica lotion, p. 356. For jammed toes, or fingers caught in a window or door, the most speedy mode of procuring relief, immediately after the occurrence, is to plunge the finger into as hot water as can be borne. By so doing the nail is softened, and yields, or accommodates itself to the blood poured out beneath it, so that the agony is soon diminished.

The finger may then be advantageously wrapped up in a bread-and-water poultice.

After the first pain and swelling of the bruise disappear, the *discoloration* which remains may be dispersed by gentle and long rubbing with camphor liniment (p. 353).

When a person is shaken and bruised all over, by a fall from a horse, or the like, a warm bath gives great relief, if he is not faint.

Burns and Scalds. These common accidents, by receiving early and suitable attention, are often deprived of much of their inconvenience. Of course, the first thing is to put the fire out, and then, if the injured parts require it, the clothing should be cut away, so as to get at the entire extent of the injury with as little trouble to the patient as possible. Should any fragment of garment appear adherent to the burned surface, the sticking part should be left, as the violence required to remove it must necessarily increase the damage to the injured part.

Fig. 86.



Extinguishing Flames on Clothing.

When the clothing catches fire, throw the person down on the ground, as the flames will tend less to rise toward the mouth and nostrils. Then, without a moment's delay, roll the person in the carpet or hearth-rug, so as to stifle the flames, leaving only the head out for breathing. If no carpet or rug can be had, then take off your coat and use it instead. Keep the flame as much as possible from the face, so as to prevent the entrance of the hot air into the lungs. This can be done by beginning at the neck and shoulders with the wrapping.

If the burn or scald involves considerable surface, symptoms of

shock are observed, from the extreme of mere weakness to that of utter prostration. This at once requires prompt attention, and a few drops of aromatic spirits of ammonia in water, or a little brandy, should be given every few moments until a return of the strength is seen. A burn, superficial, as far as depth is concerned, but covering a large surface, especially in the case of small children and aged people, is usually considered more dangerous, as far as life is concerned, than a burn smaller in extent, but deeper and more complete.

If the burn or scald is slight in character, one of the best applications is cold water dressing, keeping the linens used constantly wet with cold water. In a short time after the pain shall have moderated, one of the best things for use, and readily procured, is a dressing of pure hog's lard.

If the burn or scald, particularly the latter, is superficial in character, a simple and useful dressing is the application, by a brush or a soft wisp of old muslin, of the white of egg to the injury. As soon as the first layer dries, another should be used.

A lather of soap, from the shaving cup, applied by the brush in the same way, is often followed by immediate relief. These substances appear to protect from the action of the air the irritated nerves beneath. Do not apply cotton to the injury, as sooner or later it increases the pain, and without having done any special good.

Where the effects of the burn or scald extend deeper, involving the subcutaneous tissue, or even the parts beneath that, as the muscle, other considerations must not be overlooked. There probably will be more shock. The portion whose vitality has been destroyed by the burn cannot do otherwise than become detached from the uninjured parts beneath, and thrown off in the shape of shreds or larger masses, during the process of sloughing. After water dressing has given a degree of relief to the part, poulticing must be commenced. After being used for a short time, a mark of well-defined separation is seen at the junction of the burned and the unburned parts.

If the arm, at the elbow, is burned or scalded, so that a scar results, the contraction of this tissue will often draw up the forearm

to a right angle, from which it cannot be straightened. A burn or scald at the front of the neck is often followed by a dense white scar, which, contracting, draws the chin down toward the chest, and the lower lip down toward the chin, ending in the greatest deformity.

Burns and scalds practically differ but little from each other. Scalds are usually more confined to the *outer* cuticle, unless the substance containing the heat is viscid in character, as oil, pitch, etc., and does not rapidly run off the part with which it came in contact. As far as treatment is concerned, the two may be regarded as presenting no essential difference.

Burns by lime, caustic potash and other alkalies. Lime rapidly destroys the parts with which it comes in contact. It is useless to attempt to pick it off, for the fingers remove no more than they get hold of, so an application should at once be made of something to unite with the alkali, to form a comparatively harmless preparation; vinegar diluted with water, the acid in lemon-juice, or any other dilute acid, will answer. What has been said about the alkali known as lime may be said about the other alkalies, potash, soda, ammonia, etc.

Burns by acids—sulphuric acid (oil of vitriol), nitric acid (aqua fortis), etc. In these cases, applications of water will dilute them beyond their capacity to injure. Alkalies applied neutralize acids into harmless preparations. Common earth, gathered almost anywhere, applied in handfuls, contains alkali enough of one kind or another to entitle it to the consideration of being one of the best (and at the same time most easily secured) applications in cases of burns by acids.

Cuts. These will be spoken of under wounds.

Drowning. This frequent accident every one should learn how to treat.

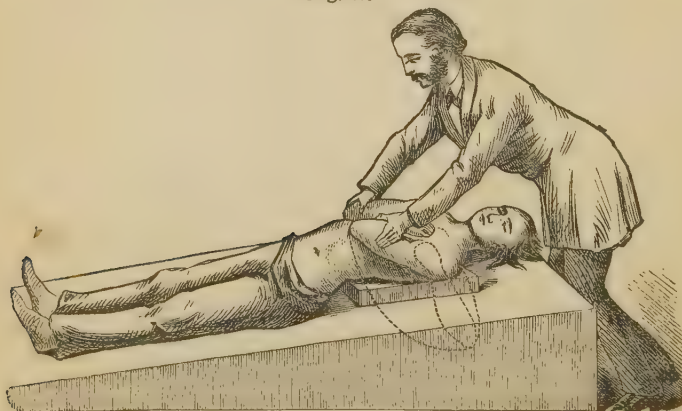
The body should be recovered as soon as possible from the water; the face turned downward for a moment, with the forefinger of a bystander slightly curved and thrust backward to depress the tongue, to favor the escape of a small quantity of water, or mucus, or other substances, often collected at the base of the tongue, over the entrance to the windpipe, which tend to obstruct the entrance

of air to the lungs. The practice of rolling a person over a barrel, or hanging him head downward, to permit the escape of water from the lungs, is of no use. The body should be conveyed to the nearest house, a messenger having been previously dispatched to make the arrangements involved in the following:—As soon as the body arrives it should be stripped of the clothing, rapidly dried, placed on a bed previously warmed, the head, neck, and shoulders, raised a very little, if any; frictions with the dry hands used to the extremities, and heated flannels kept applied to the rest of the body.

If artificial breathing can now be carried out for some time, it may be that the natural respiration can take place. Two methods are usually employed for the purpose, the first known as “Silvester’s Ready Method.”

This consists, after the above suggestions have been carried out, in pulling the tongue forward, which better favors the passage of air along the base of the tongue into the trachea (windpipe), and then drawing the arms away from the sides of the body and upward, so as to meet over the head, by means of which the ribs are raised

Fig. 87.



Artificial Respiration.

(expansion of the chest) by the muscles (pectoral) running from them to the arms near the shoulder. A vacuum is thus created in the lungs, the air rushes in, and the blood then is purified by the passage of the impure gases in the blood vessels to the air, and by

the giving up by the air of a portion of its oxygen to the blood. The arms are now brought down to the sides, and the elbows made to almost meet over what is called the "pit of the stomach." This produces contraction of the walls of the chest, and expulsion of the impure air from the lungs.

These two movements constitute an act of respiration, and should be persisted in, without interruption, at the rate of about sixteen to the minute. In other words, each complete movement should occupy about four seconds, which is about the natural rate of respiration in health.

The second "Ready Method," as it is called, is that of Marshall Hall.

The person whose breathing is to be restored is placed flat on the face, gentle pressure is then made on the back, the pressure removed, the body turned on its side, or a little beyond that. The body is then turned again on the face, gentle pressure again used to the back, then turned on the side. This should be done about sixteen times in a minute.

Both of these methods have the same object in view; either may be exclusively used, or one may be alternated with the other. Most physicians express a preference for the first described ("Ready Method of Silvester"). Both of these procedures might be practiced in advance by the reader, because such practice might be more easily remembered than a concise rule.

In speaking of the restoration of persons drowned, it is often said that he was a good swimmer, and must have been attacked with "cramp." This is a spasmodic contraction of the muscles beyond the control of the individual, and occurs after exhaustion of the muscles from over-exertion. Persons suffering from debility, especially the debility peculiarly affecting the nervous system, should never be induced to go beyond depth in the water, or out of reach of immediate assistance. There is no warning in advance of the seizure, and the person sinks at once. Many lives are lost each season, in shallow as well as in deep water, from these seizures, which could have been avoided had the bather, perhaps just recovering from an attack of sickness, or even of indisposition, not neglected the precautions stated.

Recovery from drowning can scarcely be expected to take place after an immersion of five or six minutes, although there are well authenticated cases where restoration has taken place after an immersion of as much as twenty minutes. The efforts ought to be made, and persisted in, for at least a couple of hours. As soon as returning vitality permits, a few drops of brandy, in a little water, may be given; and as the strength of the person is usually completely exhausted, from muscular efforts of the most violent and continued character, to save himself from drowning, some beef tea, or other easily digested nourishment, should be given.

The accident of drowning is so frequent that we go still further into the treatment of it, and copy into our pages the detailed rules published by the Life Saving Society, of New York. At the risk of repetition, we show their method. *Three* steps are to be taken :

Fig. 88.

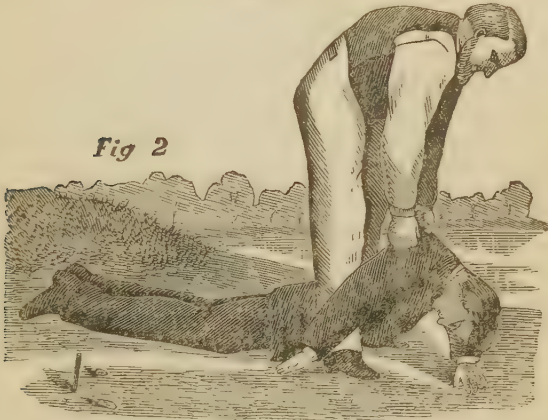


The First Movement.

1. Remove all obstructions to breathing. Instantly loosen or cut apart all neck and waist bands; turn the patient on his face, with the head down hill; stand astride the hips with your face toward his head, and locking your fingers together under his belly, raise the body as high as you can without lifting the forehead off the ground (Fig. 88), and give the body a smart jerk to remove mucus from the throat, and water from the windpipe; hold the body suspended long enough to slowly count one, two, three, four, five, repeating the jerk more gently two or three times.

2. Place the patient on the ground, face downward, and maintaining all the while your position astride the body, grasp the points of the shoulders by the clothing, or, if the body is naked, thrust

Fig. 89.



The Second Movement.

your fingers into the armpits, clasping your thumbs over the points of the shoulders, and raise the chest as high as you can (Fig. 89), without lifting the head quite off the ground, and hold it long

Fig. 90.



The Third Movement.

enough to slowly count one, two, three. Replace him on the ground, with his forehead on his flexed arm, the neck straightened

out, and the mouth and nose free. Place your elbows against your knees, and your hands upon the sides of his chest (Fig. 90), over the lower ribs, and press downward and inward with increasing force, long enough to slowly count one, two. Then suddenly let go, grasp the shoulders as before, and raise the chest (Fig. 89); then press upon the ribs, etc. (Fig. 90). These alternate movements should be repeated ten to fifteen times a minute for an hour at least, unless breathing is restored sooner. Use the same regularity as in natural breathing.

3. After breathing has commenced, restore the animal heat. Wrap him in warm blankets, apply bottles of hot water, hot bricks, or anything to restore heat. Warm the head nearly as fast as the body, lest convulsions come on. Rubbing the body with warm cloths or the hand, and slapping the fleshy parts, may assist to restore warmth, and the breathing also. If the patient can surely swallow, give hot coffee, tea, milk, or a little hot sling. Give spirits sparingly, lest they produce depression. Place the patient in a warm bed, and give him plenty of fresh air; keep him quiet.

Faintness. In any case of faintness, the patient should be at once placed in a recumbent position, the head lower than the rest of the body, all tight clothing about the neck and chest loosened, and a supply of fresh, cold air secured.

Water dashed on the face, or applied by means of a wet towel, is the best restorative.

If smelling salts or any preparation of ammonia be used, care must be taken that they are not used too persistently, as serious injury may be thereby caused to the lining membrane of the breathing passages.

Falls, Hurts from. These are generally bruises or broken bones, to which headings the reader is referred.

Frozen Limbs, Frost-bite, or Chilblains. When the circulation of any part begins to succumb to the influence of the cold, it becomes puffy, bluish, and smarting. This is because the blood moves more slowly than natural through the vessels exposed near the surface. Soon this blueness disappears, and the part becomes pallid, as if the influence of the cold had contracted the vessels to an extent incompatible with the passage of blood through them.

The pain at this point ceases; indeed, until he meets a friend, he often does not know of his mishap. At this stage the injury has become so great that, unless proper means are taken to restore circulation, complete death of the part ensues, and in due time sloughs away, and is detached from the line of living tissue.

What takes place in a part of the body, known as frost-bite, may take place in the whole of it, which is known as "frozen to death." There is increasing difficulty in breathing, owing to the engorged state of the chest, and, what should always be remembered by one so exposed to cold, an unconquerable desire to sleep. To sleep then is to die. If the person exhibits such a symptom, he must, by all means, be kept constantly moving.

Persons exposed like those just described must be treated promptly, and with one thing never lost sight of. That is, keep the frozen person away from the heat. A person taken up insensible, or approaching it, from exposure to the cold, should be taken into a cold room, his clothing removed, and thoroughly rubbed with snow, or cloths wrung out with ice water. The friction to every part of the body, particularly the extremities, must be continued for some time, until signs of returning animation appear. When the frozen limbs show signs of life, the person should be carefully dried; put into a cold bed in a cold room; artificial respiration used until the natural is established; then brandy given, also ginger tea, and beef tea. Do not forget that the patient is to be brought by degrees into rather warmer air; and lest in some part there might still be defective circulation, the person should be kept away from exposure to the heat of the fire.

Milder degrees of the same condition, as suspension of life in the ear, nose, finger, or toe, from exposure to cold, must be treated with the same general directions in view. The part should be kept away from the heat, and rubbed with handfuls of snow, or towels dipped in cold water, until circulation appears re-established. Exposure of the part to the heat before, we may say, it has been almost rebuilt, is apt to be followed by sloughing.

For Chilblains. Keeping the feet warm by wearing worsted stockings, and encouraging the circulation by rubbing once or twice a day with soap liniment, or mustard liniment, is the best mode of

managing chilblains in their first stage. The itching may be also for a time relieved by brushing over the inflamed skin with dilute sulphuric acid. But when the chilblains have broken, a bread-and-milk or linseed-meal poultice is the best application.

Railroad Injuries. The violent shock which the body receives in the collision and crash of a railroad smash-up produces sometimes a peculiar internal injury, a spinal shock. The person so hurt does not feel it much at the time. He may run around and aid other passengers, but in a few hours or days his limbs fail and he becomes partly paralyzed.

As soon as any such symptoms appear he should take to bed and seek medical advice, as it may prove to be a lasting injury.

Rings, to get off. Sometimes rings remaining a long time on the finger cause, by the growth of the latter, constriction, pain, and swelling. To remove them, wrap the finger, commencing at its tip, with fine thread, very tightly. On reaching the ring slip the end of the thread under it, oil or soap the finger well, and thus work the ring down. A gold ring, when this fails, can be readily broken by first rubbing it with quicksilver.

Ruptures or Hernia. This is a common weakness. It is caused by a portion of the bowels or their covering slipping out of their natural position in the cavity of the abdomen. If happening after birth, a rupture shows itself as a swelling suddenly appearing in the groin after violent exertion; remaining distinct while the person stands upright, disappearing when he lies down, and returning again when he gets up. It also usually fills out when he coughs. If let alone it continues increasing in size, so that instead of the bowels being contained, as they should be, in the belly, the greater part drop into the swelling, which may become of an enormous size.

The proper treatment for a rupture is the wearing of a well-fitting truss. It should never be laid aside for a day. The bowels should never be allowed to become costive.

When through neglect of precaution the bowel "comes down" and will not return, the rupture is said to be "strangulated." This is a dangerous condition, and one should be able to recognize it. When a person has been costive two or three days, and he becomes violently and frequently sick, at first throwing up stuff like coffee-

grounds, and after some hours like stools, and very offensive; if there be a feeling of a cord tied round the midriff, constant feeling of sickness, much uneasiness and anxiety, there is great reason for supposing that this has something to do with a rupture. The inquiry should be made, and if there is a rupture, and it has fallen down, immediate treatment is required.

The patient may be put into a warm bath up to his neck, and kept there till he feel very faint; he may then attempt, according to his own usual method, to put the rupture up, by pressing it gently, if it be in the groin, or by lifting it up if in the purse, and gently squeezing it toward the belly, but no violence must be used, or the gut will burst.

If this do not succeed, cold may be applied over the swelling, by filling a bladder with pounded ice and a small handful of salt, or with a freezing mixture consisting of Glauber salt and sal-ammoniac, to which some water must be added. Either of these, after being kept on some hours, will occasionally cause the return of a rupture, but they require to be used with some caution, as if the skin become frosted it may mortify. If neither ice nor the materials for the freezing mixture can be obtained, a wet rag may be put on the part, and evaporation encouraged by a continued stream of air from a pair of bellows, repeatedly wetting the cloth as it dries; by these means almost as great a degree of cold can be produced as by ice.

Some surgeons have of late strongly recommended attempting reduction of a rupture by reversing the position of the body; in other words, by holding the patient head downward, or nearly so, and they state that in many instances this method has succeeded.

Scars, from wounds, burns, small-pox, etc. Many of these are disfiguring, some painful. Repeated rubbing with some stimulating ointment, as that of carbonate of ammonia (p. 356), has been recommended. Frequently, however, nothing but a surgical operation will remove them. In "webbed fingers," and wry neck, from burn scars, this is always advisable.

Shock is the violent disturbance of the system after accidents, which does not show itself in any special part. It is, however, often dangerous. Loss of blood, bathing in cold water when heated,

or drinking it in excess, certain poisons, as tobacco and antimony, burns, and falls, produce it. The patient lies in a state of utter prostration. There is pallor of the whole surface, the lips are bloodless and pale. The eyes have lost their lustre, and the eyeball is usually partially covered by the drooping upper lid. The nostrils are usually dilated. The skin is covered with a cold, clammy moisture, often gathered in beads of sweat upon the forehead. The temperature is cold, and perhaps the person shivers.

The treatment consists in first placing the patient as flat on his back as possible, with the head raised not over an inch. This is an important point in cases of ordinary fainting, and whenever the vital powers are depressed stimulants are required. A teaspoonful of spirits, in a tablespoonful of water, every minute, until six or eight have been taken, is the best way to give it. If the temperature of the body is raised by it, and there seems a revival of the action of the heart, enough brandy has been given. Twenty drops of the aromatic spirits of ammonia, in a teaspoonful of water, may be given every couple of minutes, until four or five doses have been taken. The applications of heat to the extremities and "pit of the stomach," are very useful. Flannels wrung out in hot water, or bottles of hot water properly wrapped up, should not be neglected. Mustard plasters to the pit of the stomach are often used. Nausea and vomiting often are seen in shock, and can best be allayed by getting the patient to swallow, whole, small chips of ice. Ice can be easily chipped by standing the piece with the grain upright, and splitting off a thin edge with the point of a pin.

Sprains and Strains. These occur when the sinews or muscles are violently wrenched. The ankle and wrist are especially apt to suffer thus.

When a joint has been sprained, it should be kept perfectly at rest, and if the ankle or knee, the person should lie in bed, or on a sofa. Warm, moist flannels should be repeatedly applied for some hours, and a bread-and-water poultice on going to bed. These should be continued for a few days, and no attempt made at using the joint. If the pain be very severe, and continue so for the first or following days, leeches may be applied, and repeated once or oftener. Some persons are fond of putting a vinegar-poultice on at

once; but this is better after the tenderness has subsided, and there remain only a little pain and stiffness in the joint; then a vinegar-poultice is a very good application.

When the pain has entirely ceased, the joint must not be carelessly used; and, if it be the knee or ankle sprained, walking till the joint becomes weak and aches must be most carefully avoided, as irreparable mischief is thereby very often set up. Short and gentle walks only, therefore, should be taken, and may be repeated by degrees more frequently during the day, if they do not produce pain or fatigue.

A joint often swells a long while after a sprain, under which circumstance it is best to bind it up with straps of soap-plaster or a roller.

Stings of hornets, wasps, and bees, are wounds, not made by the insect to obtain food, but in anger and for its own defence; and into these wounds, which are made by a sharp dart at the extremity of the body, and which is hollow, poison secreted in twisted tubes (*a a*), which pour it into a little bag (*b*) specially formed as a reservoir, is thrown by the sting dart (*d*), which protrudes from between a sheath formed by two side plates (*c c*) at the end of the insect's body.

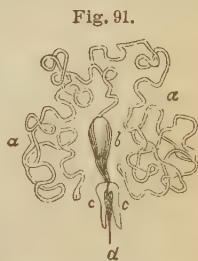


Fig. 91.
The Sting and Poison Bag of a Bee.

A stimulating application to the injury, as a drop of aromatic spirits of ammonia, will often afford the greatest relief. A pinch of common table salt, dampened with water and rubbed in, is very useful for the same purpose; likewise a slice of onion rubbed on gives almost instant comfort; or the application of wet clay, or cosmoline.

Stroke. *Sun-stroke.* This is a common accident in the intense heats of American summer. It does not always need the sun to bring it on, as great heat in the shade may cause it. This is called "heat-stroke."

Before it comes, there is pain in the head, wandering of the thoughts, irritable temper, nervousness, and general ill-feeling.

"Sun-headache" and "sun-pain" show that there is unusual danger from this source.

How Prevented.—During hot weather all alcoholic drinks must be avoided. A bath should be taken daily. Abundant cool, but not ice-cold, water should be taken. The head should be well protected by a tall straw hat, with a damp newspaper or sponge, a wet handkerchief or a handful of green leaves, in the crown.

When the heat is felt unpleasantly, exposure to it should cease.

Treatment.—The person attacked should at once be carried to a cool, airy spot, in the shadow of a wall, or to a large room in a house with a bare floor; or, what is often better, if there is no sun, he should be placed in a back yard, on the pavement.

The clothing should be at once gently removed, and the patient placed on his back, with the head raised a couple of inches by a folded garment. Then the entire body, particularly the head and chest, dashed with cold water in profusion. While preparations are being made for this, a messenger should be despatched for a good supply of ice. A large fragment should be placed in a towel, and struck a few times against the side of the house, to reduce it rapidly to small pieces. These pieces, mixed by the hand into a bucket of water, will promptly supply ice-water. Two buckets can be used, each half full of the small ice, and as soon as the water of one is used for dashing against the patient, another will be ready for the same purpose. The ice-water must not be *sprinkled* over the person, but *dashed* against him in large bowlfuls, particularly against the head and chest. While one person makes the ice-water, and another uses it, a third should, in the same manner, with a towel, break some ice in fragments not larger than almonds. A double handful, at least, of these bits should be placed in a thin, coarse towel, the ends gathered up and fastened with a string, as you would a pudding. Then holding to the tied portion of the collection of ice, the entire surface of the body should be rapidly *rubbed*.

These measures are to reduce the heat of the body. When the *decline* in the heat is noticed, the cold applications should be abandoned, the patient carefully removed to a dry spot, and the entire surface of the body dried off with towels. Should a tendency

to a return of the high temperature be seen, as sometimes happens, even after consciousness is restored, it must be met by a renewal of the cold applications.

Artificial respiration, until the natural returns, must be resorted to as soon as the heated condition of the body is overcome. The dashing of cold water over the chest and face is a useful means of encouraging a return of the life force.

Stroke of Lightning. A person struck by lightning is usually rendered more or less unconscious by it, which lasts for a longer or shorter time.

The *burns* caused by lightning should receive the same attention as burns from any other cause.

When the person exhibits little or no signs of life, the clothing should be rapidly and immediately removed, the body exposed to a dashing of cold water; then dried, placed in a bed, and warmth applied, particularly to the "pit of the stomach," by means of bottles filled with hot water, or the tin vessel kept in some households for such application. It is somewhat concave on one surface, filled with hot water, and, if it can be had, is well adapted to the purpose.

Artificial respiration should be kept up until the parts of the brain and nervous system in charge of this duty shall have recovered enough to attend to it. Recoveries after an hour of supposed death are on record.

Some stimulant, as the aromatic spirits of ammonia, may be employed.

Suspended Animation. This is the term applied by medical men to apparent, but not real death, from the breathing of gases, such as fixed air or carbonic acid gas, well-damp and choke-damp, charcoal fumes, common burning gas, and coal gas; from strangulation, hanging, or suffocation. Of course, death will result from any of these causes; but frequently the sufferer is only seemingly dead when discovered, and may be brought to life by appropriate means. These, in all the circumstances mentioned, are pretty nearly the same.

Old wells and brewers' vats very often are filled with fixed air or carbonic acid gas, and are rendered very dangerous to enter by its

presence. A person breathing it will drop insensible and die in a few minutes unless rescued.

Buckets of water dashed down into the well, or masses of lighted shavings or blazing paper, give enough movement to the carbonic acid gas to dislodge it from its resting-place. After testing the success of the effort, by again introducing the lighted candle, it can soon be known whether a person may enter with impunity. Freshly-slaked lime also rapidly absorbs it.

When a person appears overcome with the carbonic acid gas, he is, of course, wholly unable to help himself, and he must at once be removed by another. No time should be lost in descending or arising, as the person lowered depends upon doing everything during the interval he can hold his breath; for, of course, should he inhale the gas, his position, in this respect, would be but little better than the man he attempts to succor. A large sack is sometimes thrown over the head and shoulders of the person who descends. It contains enough air to serve for several inhalations, while the texture of the material prevents, to a hurtful degree, the admission of the gas.

The person suffering from asphyxia from the gas, immediately after being brought out, should be placed on his back, the neck and throat bared, and any other obstacles to the breathing quickly removed. His body should then be quickly stripped, and if he have not fallen into water on being overpowered by the gas, his head, neck, and shoulders, freely dashed with cold water. A person should stand off some distance, with a bowl of cold water, and throw its contents, with as much force as possible, against the parts. Others should follow, without interval, for half a minute, while one can count thirty slowly, then the dripping water be wiped away by a towel. This procedure should be repeated from time to time, as apparently required. Sometimes, if a brook of water is near, the stripped person might be dipped again and again; being careful, of course, not to dip in his face. Artificial respiration should be used with as little intermission as possible.

Should the person have fallen in the water, and become chilled, the use of the cold water, in this manner, had better be avoided, as the evaporation of moisture absorbs more heat than can be manu-

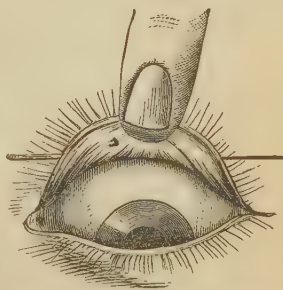
factured by the exhausted and overpowered system. In such a case, the body of the person should be put into a warmed bed, with hot applications, and artificial respiration at once established, as in drowning.

While artificial respiration is being used, friction applied to the limbs should be kept up.

Teeth Knocked Out. When this happens, the bleeding should be stopped by the use of cold water, and the tooth should be immediately replaced in its socket and fastened by a piece of silk thread. It will often regain its position and usefulness by this precaution.

Things in the Eye. A great deal of pain is often suffered from various substances getting in the eye. The best way to remove them is by holding a knitting-needle over the upper lid, close to and just under the edge of the orbit, then, holding it firmly, seize the lashes of that lid by the fingers of the disengaged hand, and gently turn the lid upward and backward over the needle, or substitute used. Movement of the eyeball by the sufferer, in a strong light, usually reveals the presence of the intruding body, so that by means of a corner of a silk or cambric handkerchief, it can be detached and removed.

Fig. 92.



Removing an Object from the Eye.

Should the foreign body be imbedded in the membrane covering the eyeball or the eyelid, a steady hand and a sharp-pointed instrument will usually lift it out.

The foreign body often cannot be seen, but the person assures us he feels it. Often he does not really feel the presence of the body, as much as the roughness left by it. In such a case, or even if the body has been seen and removed, a soothing application to the injury is as useful as the same thing applied to a wound of the hand. Take a spoon or cup, heat it, and pour in a few drops of laudanum. It will soon become dense and jelly-like. A few drops of water added will dissolve this gummy material, and the liquid thus formed may be applied by the finger to the "inside of the eye,"

as they say. The laudanum is opium dissolved in alcohol. The alcohol is somewhat irritating, but is easily evaporated by the gentle heat, leaving an extract of opium, which is dissolved in the water afterward added.

Lime, soda, or potash, not unfrequently gains entrance into the

Fig. 93.



Bandage for an Injury
to the Eye.

eyes of those working in these substances. A dry camel's hair brush will remove them, but if not at hand, time should not be wasted in trying to pick them out, but a little vinegar or lemon-juice, diluted with water, should be thrown into the eye, which will rapidly neutralize their injurious action.

After an injury of this kind to the eye, or any other which causes pain and inflammation, this precious organ should be bandaged, and excluded from the light. The plan of doing this is shown in Fig. 93. The strips

a a a are applied first, *b b* over them, and pinned or sewed where they cross.

Things in the Ear. Insects sometimes get into the ear, and cause much inconvenience, even if they do not sting and produce further mischief. The best mode of proceeding, in such case, is to fill the ear with sweet oil, which will kill the animal by stopping up its breathing pores, and generally floats it out. But if it be not thus dislodged, it must be washed out with a syringe and warm water.

When peas, beans, pebbles, or such like are found in the ears of children, attempts should never be made to get them out with a knitting-needle, or a stick. The rounded end of a hair-pin may sometimes be used. But the safest is to employ a syringe with a narrow nozzle, which will throw a good stream of water *behind* the object, and thus force it out.

The *earwig* is a small, winged insect, which has its name from the frequency with which it has been the cause of trouble by entering the ear. Pouring in oil will soon destroy it. In cases where this means is not at hand, as in hunting, blowing tobacco smoke in the ear will kill or stupefy it and similar intruders.

Things in the Nose. Children sometimes amuse themselves with poking things with which they are at play into their noses. If peas, beans, or any other seed or substance be thrust in, which swell as they moisten, no time should be lost in getting them out, otherwise, as they enlarge, they become more firmly fixed, and more difficult to be removed, are attended with great pain and suffering, and may even cause dangerous consequences. Hard substances, as shells, which remain unchanged in bulk by moisture, are of less consequence, and may remain some days without causing much inconvenience, and often drop out of themselves.

If the pea or shell be in the nostril, the child should be made to draw his breath in deeply, and then stopping the other nostril with the finger, and closing the mouth firmly, to snort forcibly through that side of the nose in which the substance is lodged. If this be done soon after the accident, two or three efforts usually shoot the unwelcome lodger out. But if this does not succeed, the nose must be lightly nipped with the finger and thumb above the pea or shell, so as to prevent it getting further in, and then the eyed end of a bodkin or probe, having been a little bent, must be gently insinuated between the bottom of the nose and the substance, and when introduced sufficiently far, must be gently used as a hook to bring it down.

Things in the Throat, Gullet, and Windpipe. Choking and strangling from pieces of food or bones of fish are by no means rare. The body should be bent forward, when several smart blows, high up between the shoulders, will sometimes dislodge it. This failing, it had better be extracted with the curved end of a long hair-pin, or the loop at the end of a scissors blade, which can be unriveted for the purpose. If the object is an artificial tooth or other hard and pointed substance, care must be had not to injure the throat in efforts to get it out.

Objects in the *windpipe* cause severe coughing and choking, the sufferer becoming, at times, quite black in the face. A surgical operation is required in desperate cases; while some have been relieved by being held head downwards. This must be tried with caution, however.

Needles, Fish-hooks, and Pins in the Flesh. Needles often

enter the flesh and remain long in the body without doing much harm. They travel quite through it at times. Pins can usually be extracted by their heads. When a fish-hook has plunged its barbed point into the flesh, it must either be cut down upon and withdrawn, or else the hasp pushed forcibly, so that the barb is driven out through the skin and the hook is held by the curved portion. The barb can then be snapped off with a pair of steel nippers, or the rest of the hook pulled through after it.

Splinters or Thorns. These should be removed by cutting the flesh above them with a sharp knife and lifting them out. If they "fester," this can be hastened by poultices, and the matter let out by opening soon with a sharp knife. Do not neglect these small injuries. They have often produced lock-jaw and death. If the splinter is under the finger-nail, and cannot be pulled out, do not waste the outside end by picking at it. The nail immediately above should be scraped as thin as possible by a piece of glass, and then the thin nail overlying should be split with the blade of a knife, or an incision made on each side of the splinter, and the tongue of nail between the incision removed, which should expose the upper surface of the splinter along its entire course. The restraining pressure of the nail upon the foreign body is in this way gotten rid of, and at the same time an outlet for the products of inflammation is given.

A piece of lint, wet in water, to which a good deal of laudanum has been added, should be applied, and kept wet with it as long as may be necessary.

Veins, Swollen and Bursted. Laboring people, and especially women, have what are called *varicose veins*, when the veins of one or both legs become very large and swollen. If let alone, the whole leg, and sometimes the thigh up to the groin, becomes more or less completely covered with a network of these swelled vessels. After long standing, about and toward evening the veins become enormously swollen, rendering the limb heavy and painful. Very commonly the skin inflames on some part of the leg, and an ulcer forms. Sometimes, without any ulcer, one of the veins suddenly bursts, and the person loses a large quantity of blood, and naturally becomes much alarmed.

How Treated. The bowels should be kept open, that is, moved every day, by some of the remedies mentioned hereafter (see page 340). Then the limb should be swathed in a well-fitting roller bandage, as described on page 202. Or, what is better, a carefully adjusted lace-stocking should be worn.

When a vein bursts it may be immediately stopped by putting the finger on the bleeding part, and laying the person down flat, either on the ground or on a bed. A little pad of lint is then to be put on, and bound fast with a roller, which should first be applied upon the foot, and rolled up over the pad and above the knee, or higher, according to circumstances. The person should be kept lying in bed for a few days, in which time the wound heals, and the pad may be removed, having first soaked it for a few hours in a wet poultice. A small piece of plaster may afterward be put on, and the leg rolled as before.

Wounds. *The Dressing of Wounds.* Wounds should never be uncovered for the purpose of being dressed until everything that is likely to be required during the process is close at hand.

Old dressings that have become fast to the surface of a wound should *never be pulled off sharply*, but should be previously loosened by bathing with warm water or by the application of a bread poultice.

Discharges should be cleaned away from the edges of a wound, and from the surrounding parts, but the surface of the wound itself should be left undisturbed. The attendant should be careful to get none of the discharge in his eyes. The utmost cleanliness should be observed.

A soft surgical sponge should be used, or else cotton-wool or tow soaked in water. When, as in burns, the wound is extensive, but a part of it should be uncovered at once.

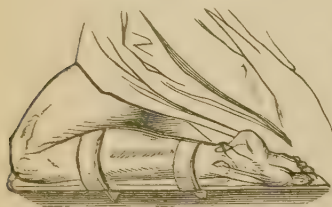
Gunpowder and Gunshot Wounds. Every fourth of July brings a rich harvest of these injuries. When they are in the form of burns from the flaming up of ignited gunpowder, the treatment is the same as that given for other burns. Small shot and grains of unburnt powder should be picked out with a small forceps or the point of a needle or penknife. The bleeding should be staunched as directed under that subject, and the part wounded placed in a

natural and easy position. If there is much shock and prostration, the wounded man should not be moved for some time, and aromatic spirits of ammonia (twenty or thirty drops in water) or some stimulant be administered. Cold-water dressings to the part will be found most comfortable. The thirst which soon sets in may be freely allayed with cold water. A bone broken by a ball should be treated as before described.

Torn or Lacerated Wounds. These frequently result from machinery or railroad accidents, also from nails and hooks. There is apt to be in them dirt and other foreign substances. They should therefore be carefully cleansed. Strapping, not too tight, and light bandaging are very serviceable in them. They are often slow to heal. When a finger or limb has been crushed by machinery or a heavy weight, an excellent mode of treatment is to keep it constantly wet with tepid water, by the "irrigating" plan, which has been described on an earlier page.

Some torn wounds, of not unfrequent occurrence, require modes of dressing different from others. A peculiar and important accident is a rupture of the ham-string, or, as physicians call it, the

Fig. 94.



Dressing Ruptured Ham-string.

tendon of Achilles. This strong sinew is at the back of the heel, and in violent efforts at leaping, as well as by direct violence, may be torn across. The patient must then submit to having his leg placed in the splint depicted in Figure 94. It usually requires some two months to unite.

The method of applying the dressing has been so clearly shown by the artist that further description is needless.

Cuts, Stabs, and Thrusts. These are known as *incised* and *punctured* wounds, and form an important class of injuries. The treatment is to remove all dirt, clots, and foreign matter, by the free use of water, check the bleeding by some of the means already described, then bring the edges of the wound smoothly and evenly together, and fasten them by strips of adhesive or sticking plaster.

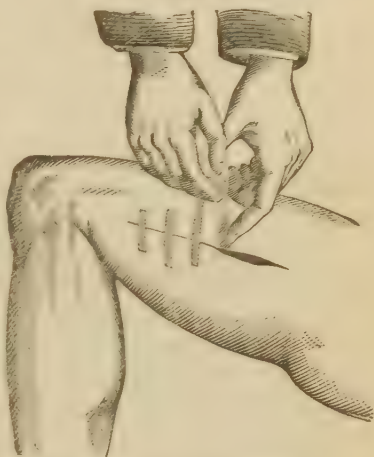
The use of this plaster deserves special mention. It should first be cut lengthwise into strips a quarter of an inch wide. These can be cut again crosswise, so as to extend across the wound, and far enough on each side to secure a suitable hold on the skin. Warm the plaster side of the strip at the fire until it becomes thoroughly and uniformly melted, then, beginning at one end (recollecting that the centre of the strip should cross the incision), rapidly and completely attach it to the skin, as a rule, at right angles to the line of the cut. As the middle part approaches the wound, with the fingers bring up the skin towards the incision, from the other side, upon which the other half of the strip is to rest; then rapidly attach the rest of the strip.

If one strip will keep the edges approximated along the whole length of the wound, no more is needed. If not, use others. Where more than one is used, the edge of the strip should be brought across a short distance from the extremity of the wound, so as to permit the ready exit of blood or pus. On the scalp, the face of man, and the extremities of some persons, the hairs must first be shaved off the skin, or the plaster will not remain attached.

Most persons, in using adhesive plaster on a wound, apply a large piece, or several small pieces, so as to completely cover it. This must not be done. A few drops of blood escaping after such an arrangement, even when the edges of the wound have been carefully brought together, undergoes decomposition, irritates and inflames the parts, loosens the plaster, and changes what otherwise should have been the result of the accident.

Stabs in the chest may penetrate the lungs. When this is the

Fig. 95.



Applying Sticking Plaster.

case, the patient spits blood. The great object is to check this as soon as possible. We should inhale the vapor of turpentine, sprinkled on a handkerchief; swallow small pieces of ice; have cold applied to the chest; and, as soon as possible, take five to ten grains of gallic acid, and repeat it every quarter of an hour.

The *tongue* is sometimes cut with a knife, or bitten by the teeth, causing alarming bleeding. This wound cannot be dressed with much success. The best step is to wash the mouth with alum-water till the bleeding ceases, and leave the wound to nature.

The *throat* is often *cut* in attempts at suicide. Usually, the wound is not deep enough to accomplish this desperate purpose. The treatment is peculiar. Small quantities of nourishment and stimulants may be given, but the wound should not be sewed or tightly strapped, as the matter accumulating in the wound might press on the windpipe and choke the patient. The position of the patient is the great thing to attend to. When the bleeding has ceased, his shoulders should be raised by pillows, so as to make the head bow forward. Hot, moist flannels should be kept to the wound.

Scalp Wounds are frequent from machinery and from falls, and

Fig. 96.



Bandage for a Scalp Wound.

from blows from missiles. If there is concussion or compression of the brain, these should be treated as set forth under those headings. The wound should be thoroughly washed by pouring tepid water upon it, the hair should be cut with scissors close to the scalp, the bleeding stopped by pressure or twisting the arteries, or by holding a piece of ice to the part, and the fragments of the scalp carefully replaced and fastened by adhesive straps. A bandage should then be applied to the head, the pattern for which will readily be seen by Figure 96.

Passive Movements. After almost any severe surgical disease or injury, the limb which has been hurt fails to regain its pliability long after the immediate wound is healed. The stiffness and

soreness, the swelling and the pain on motion, must be vigorously combated, or, through indulgence, the joints will become permanently stiff or "anchylosed," and the muscles dwindle and pass into what is called "atrophy."

To prevent this, the limb should be moved to and fro, its surface well rubbed with stimulating liniment, as Nos. 164, 166, or 171 (page 353), or with the dry hand. Warm and cold water may be poured on it from a height alternately for two or three minutes, morning and evening, followed by active rubbing. Electricity and the flesh brush are also in much use in obstinate cases, and also kneading and working up the muscles, the process called "massage." Similar procedures are often very valuable in stiffness in chronic rheumatism.

For all such cases the "Swedish movement cure" has been often and justly praised. Its peculiarity is that the person is handled and moved to and fro by an assistant, instead of moving himself. The advantages are that more motion with less fatigue is ensured, and it can be more accurately directed than by the patient's own volition.

Without entering into the subject to any great extent, we illustrate it by showing a few of the more prominent passive movements.

The first is when the patient grasps a bar above his head, and the assistant grasps his hips and moves his body around in a circle. By this

Fig. 97.



Passive Motion of the Trunk.

Fig. 98.



Passive Motion of the Chest and Abdomen.

Fig. 99.



Passive Motion of Limbs Forward.

the muscles of the trunk, of the back and the thighs are well stretched, and the hip joints rendered more pliable.

The second motion, displayed in Figure 98, is where an assistant grasps the hands of the patient, who is upon his knees, and bending them backward over his head, puts the muscles of the chest and abdomen on the stretch, as well as the joints of the arms and the back.

In Figures 99 and 100 we illustrate the plan pursued in passive motion of the lower extremities. Figure 99 shows how this is done by a knee and hip motion *forward*, during which the patient can be drawn on one or the other side. Figure 100 represents

Fig. 100.



how the muscles and joints of the lower extremities can be put on the stretch backward.

These few examples will give the reader an idea of the nature of passive movements. They are extremely useful after sprains, fractures and lacerations, after rheumatic and neuralgic attacks, and similar ailments which affect the power of voluntary movement. Their general principles are evident from what has been written, and it will be easy to extend their application as needed.

Passive Motion of Limbs, *Backward*.

POISONS AND POISONING.

Hardly any accident is more common than poisoning, either by intention or by mistake. Often, there are symptoms of poisoning when the patient cannot or will not say what it is he has taken. Therefore the importance of some

General Directions for the Treatment of Poisoning.

1. Make the patient *vomit* at once. To do this, give him a teaspoonful of ground mustard, in a teacupful of warm water, every minute, until he throws up. Or a tablespoonful of common table salt, in the same quantity of warm water. Or tickle the inside of his throat with a feather or the finger.

2. After he has well vomited, let him take the antidote for the poison, when any one is given in the following pages.

3. Rest and quiet, a low diet, and the reclining position, should be kept for several days. Barley water (p. 322), linseed tea (p. 323), chicken broth (p. 326), and such articles, should be the main staples of food for a few days.

Proceeding now to the particular poisons which one is liable to be called upon to treat, we speak of them in alphabetical order.

Acids—Mineral. These are nitric acid, or aqua fortis; sulphuric acid, or oil of vitriol; and muriatic acid, or spirits of salt. Commence with a vomit. Then, give a tablespoonful of *lime-water* (p. 355), in a wineglassful of water, every minute, until the burning pain is relieved. Common soap may be made into a strong suds, and a wineglassful of this given frequently.

Alcohol. This, in the form of brandy, rum, gin, whisky, or other intoxicating liquors, is a dangerous poison. Persons who become "dead-drunk" are liable to be dead in earnest, unless restored. Give an emetic, or tickle the throat, to make them vomit. Then pour cold water, from a height, on their heads. When awakened, give five grains of carbonate of ammonia, in a wineglass of water, every quarter of an hour.

Aconite. Called also markshood and wolfbane. Give emetic at once, and if the patient is stupid, keep up the breathing by artificial respiration (p. 226). This dangerous poison is much used in liniments, which are sometimes taken by mistake.

Ammonia, and other alkalies. By the latter name chemists call lime, soda (washing soda), potash, lye, and similar materials. Spirits of hartshorn, or aqua ammonia, is a well-known strong irritant. When taken internally, give, at once, table vinegar, by the dessert-spoonful, till the pain lessens. Lemon-juice will also answer. Olive oil will afterwards be beneficial.

Antimony. This is contained in tartar emetic, and antimonial wine; also in "hive syrup," sometimes used for colds in children. It causes violent vomiting. The antidote is tannin or tannic acid, nutgalls, or powdered oak bark. A teaspoonful of tannin, in water, may be given. A cup of strong green tea is also useful as an antidote, and is readily prepared.

Arsenic. This common poison is found in ratsbane, Paris green, fly poison, Fowler's solution, and other familiar preparations. The first step is to give an emetic and vomit freely (see p. 345). Then the patient should drink plenty of milk, white of egg and water, or flour and water. The antidote is freshly prepared hydrated peroxide of iron, which can be had of any apothecary.

Baryta. This substance, largely used to adulterate certain paints, is sometimes accidentally swallowed in poisonous doses.

The antidote is water, acidulated to about the strength of lemonade, with sulphuric acid, which converts the baryta into an insoluble compound, which must be dislodged from the stomach by an emetic.

Belladonna. *Deadly Nightshade.* The berries are sometimes eaten by children. Empty the stomach with an emetic, pour cold water, from a height, upon the head, if there is stupor, and give ten drops of laudanum, every quarter of an hour, for two hours (to an adult, two drops to a child).

Bismuth. Often used in toilet powders. Give an emetic, and when it has acted, copious draughts of milk.

Bitter-Sweet. *Woody Nightshade, Dulcamara.* Proceed as for belladonna.

Camphor. Give an emetic, followed by draughts of warm water, flaxseed tea, gum-arabic water, milk and the like.

Copper. Cooking in copper vessels, or allowing acid fruits to remain in them, may poison the food. Blue vitriol is a common salt of copper. After free vomiting, give milk, or white of eggs, in water. Ordinary baking soda, or iron filings, a half teaspoonful every five minutes, should be given, to the extent of four or five doses, if the symptoms are severe.

Corrosive Sublimate. The bichloride of mercury (corrosive sublimate), often used as a solution, in houses, for destroying vermin about beds, is one of the most active poisons, when taken internally. The red oxide of mercury (red precipitate) is another dangerous salt of the same metal. When swallowed, the white of eggs should at once be given, and often repeated. In the absence of this form of albumen, common milk can be used, or wheat flour beaten up with water.

Digitalis. *Foxglove.* Treat as for belladonna. Twenty or thirty drops of aromatic spirits of ammonia, in water, will aid in restoring the strength of the heart.

Henbane. *Hyoscyamus.* Treat as given above for belladonna.

Iodine. The common tincture of iodine, used for external application, is the usual form of this poison. Starch, in water, may be freely given until vomiting is secured by an emetic.

Iron, Sulphate of. *Copperas, or Green Vitriol.* This is an irritant poison. After vomiting, let the patient take carbonate of soda (baking soda), as recommended for copper poisoning.

Lead. The form from which poisoning by this substance usually takes place is the acetate of lead (sugar of lead). The carbonate of lead, the "white lead" of the painters, and the red oxide (red lead), are also sometimes swallowed in poisonous doses. They all act as irritant poisons.

The treatment of such cases consists in giving, as an antidote, water, acidulated to about the strength of lemonade, with sulphuric acid (oil of vitriol).

Sulphate of magnesia (epsom-salts), or the sulphate of soda (Glauber's salt), in water, are also reputed antidotes. After the antidote has been given, in poisoning by lead, an emetic should be given.

Lead poisoning, in the forms of painters' colic, and lead palsy, follow from much exposure to the metal. Cosmetics containing white lead, and hair-color restorers, containing sugar of lead, water which is contaminated by lead piping, and eating food preserved in leaden cans, may cause them. The free use of milk will often prevent these bad effects.

Mushrooms. When poisoning from eating mushrooms takes place, the contents of the stomach should at once be evacuated by an emetic. After vomiting has commenced, it should be promoted by draughts of warm water, barley water, but particularly by drinking copiously of warm milk and water, to which sugar has been added.

Nitrate of Potash. *Saltpetre.* In large doses, say half an ounce or more, taken internally, is followed by poisonous symptoms. There is pain, with heat in the stomach, vomiting, and purging of

blood, with great prostration, and other symptoms denoting the action of an irritant poison.

No antidote is known. The treatment consists in rapidly evacuating the contents of the stomach by an emetic, and the free administration of mucilaginous drinks, with some paregoric, every little while.

Nitrate of Silver. *Lunar Caustic.* Used in hair dyes and indelible ink. The antidote for this violent poison is common salt, which acts promptly and efficiently. A strong brine should be swallowed as soon as possible.

Opium. *Laudanum, Morphia, Soothing Syrup.* This is the most frequently used poisonous agent. The first step is to give an active emetic, like ground mustard, salt and water, or ipecac.

The narcotic effects upon the brain, at the same time, as far as possible, must be attended to. If the respiration is yielding to the poison, that is, falling much below the standard of about twenty to the minute, it must be sustained by assistance. The exposed body of the patient should be dashed with cold water, not neglecting the head, face, and chest. After the cold water has been sufficiently used in this way, the body should be dried, removed to a dry spot, and hot applications made to the extremities and other parts. This is necessary, owing to the heat-producing power of the body being impaired by the suspended or diminished respiration.

If the respiration is not suspended, but is going on at a diminished rate, say six or eight to the minute, artificial respiration is not required, unless the number of respiratory movements of the chest falls below that; but the other measures may be used. In addition to these, a strong stimulant, in the shape of twenty or thirty drops of aromatic spirits of ammonia in a tablespoonful of water, may be given three or four times, at intervals of a couple or more minutes. It is better than brandy, or anything alcoholic, because the mode of the action of brandy is much the same upon the brain as opium, and it might be rather adding to instead of taking from the poison that is at work. The aromatic spirits of ammonia will give the advantage, without the disadvantage. A few tablespoonfuls of very strong freshly made coffee is a useful thing to give in such cases.

Among measures to keep in activity the circulation and respiration, as well as to promote the elimination (casting out) from the blood of the poison acting as a narcotic, there are few things more useful than muscular exercise. The patient should be walked or run up and down the room constantly.

Oxalic Acid. Often taken by mistake for epsom salts—a dangerous mistake. Give at once powdered chalk, calcined and powdered magnesia, or strong lime-water. After these have been administered for a time an emetic will empty the stomach.

Poison Vine. *Poison Oak, Poison Sumac.* These are species of *Rhus*, and abound in many parts of the United States. The juice, or even the touch of the leaf when the dew is on it, brings about in many persons redness, itching, swelling, and blisters. The person so affected should take a dose of epsom salts or cream of tartar, to empty the bowels, and bathe the parts with lead-wash (p. 355). A wash of a teaspoonful of baking soda in a tumbler of water immediately after exposure will prevent the eruption. When the latter has appeared, painting the parts with tincture of iron will usually check it. A solution of blue vitriol or sulphate of copper, a teaspoonful to the pint of water, is also an efficient lotion.

Prussic Acid. This substance is so rapidly fatal that little can be done to avert death. If possible, give an emetic of mustard, and follow with stimulants.

Phosphorus. Sometimes taken in rat and roach poison, and in matches. There is no antidote known. Some calcined magnesia may be given in plenty of water, to be rapidly followed by an emetic, and then an abundance of mucilaginous drinks.

Savine, Oil of. This substance in large doses inflames the stomach and bowels. Give olive oil in tablespoonful doses, and empty the stomach with emetics.

Stramonium. Usually known as thorn apple, or jimson weed; belongs to the same natural order in botany as belladonna, and when taken internally in improper quantities, is to be treated by similar general means. Children often gather the seeds and eat them.

Strychnine. *Nux Vomica.* This dangerous substance destroys life quickly, with severe convulsions. The patient should be made

to vomit without delay. Chloroform should then be given in teaspoonful doses, in water, every quarter of an hour. Artificial respiration may be tried if apparent death has set in.

Tobacco. The oil of tobacco is a violent poison, and the leaf when swallowed causes nausea and vomiting. This should be encouraged with warm water, after which twenty-drop doses of aromatic spirits of ammonia, in a tablespoonful of water, will be of benefit.

LAYING OUT THE DEAD.

When a person dies, the eyes should be closed by gentle pressure with the fingers for a few minutes, or a small weight—a penny or similar coin—may be used to keep up the pressure.

The limbs should be straightened out carefully, and a bandage applied under the lower jaw, to support it; the arms should be placed by the side, and the lower extremities kept in position by means of a bandage connecting the great toes.

The clothes should then all be removed, and after the body has been thoroughly washed, be replaced by a clean bed-gown.





PART III.

SICKNESS IN CHILDHOOD.

THE DIVISIONS OF THIS PART.

The ailments affecting children, either exclusively or with especial frequency, will be spoken of on the same plan as were those of adults. But a less rigid adherence to the plan of Part II will be adopted, as we shall have fewer maladies to study. The first chapter of this part, the Seventh of the book, will be devoted to ailments affecting the whole body of the child; the second chapter, Eighth of the book, will treat of those confined to parts of its body; while the third, the Ninth of the book, will explain the management of the accidents, etc., to which the child is particularly liable.

By the term "Childhood," in this Part, is not meant *infancy*, that is, the first year of life. This has been already fully treated in "The Physical Life of Woman," to which work the reader is referred for the management of the newly born and of babes. "Childhood," as here used, covers the period from the epoch of weaning to that of puberty, and the doses recommended will be for children about eight or ten years of age.



CHAPTER VII.

DISEASES OF CHILDREN—AILMENTS AFFECTING THE WHOLE BODY.

Infantile Remittent Fever: (Wasting Fever—Gastric Fever—Worm Fever.) *Teething Fever.* *Scarlet Fever:* (Scarlatina—Scarlet Rash—Putrid Sore Throat.) *Measles:* (French Measles—Black Measles.) *Mumps.* *Chicken-pox,* or *Varicella.* *Small-pox,* and *Vaccination.* *Chorea,* or *St. Vitus' Dance.* *Jaundice,* or *Yellows.* *Worms,* and *Worm Troubles.* *Hydrocephalus,* or *Water on the Brain.* *Marasmus:* Wasting, or *Decline.* *Scrofula:* Scrofulosis, or *King's Evil*—Management of Scrofulous Children—Hygienic Treatment. *Rickets,* or *Rachitis.* *Fits,* or *Convulsions.* *Night Terrors,* and *Excessive Nervousness.*

Infantile Remittent Fever. Known also as *Infantile Typhoid*, *Wasting Fever*, of children, *Worm Fever*, *Infantile Hectic*, and *Gastric Fever*, of infants.

How Distinguished. In this affection, there is always inflammation of the stomach and bowels. It may come on suddenly, the child, though apparently well on going to bed, being attacked soon afterward by fever; the skin is hot and dry, the face flushed, the eyes red, the pulse quick, the thirst constant, with dry, coated tongue, but red at its point; the child is very restless, and even delirious. The abdomen is tender on pressure, and hot, and there may be nausea, and vomiting of a sour, greenish yellow fluid. These symptoms continue until nearly daylight, when they begin to lessen, though they do not disappear entirely until the day is well advanced. Even then, there is languor, with great irritability, and the symptoms are again observed to be present towards nightfall, and the fever thus comes and goes, and may even become of a continued form. Often, the child is several days complaining, with thirst, hot skin, loss of appetite, fretful, etc., and gradually the disease is fully developed. Generally, there is constipation, or diarrhœa may

be present, with frequent, small passages. All discharges from the bowels are very offensive, dark, or clay-colored, tarry, and even bloody. In the latter case, there is more or less straining and griping. In severe cases, the child lies upon the back, with the knees drawn up, and his face shows the distress which he is suffering. In protracted cases, the symptoms assume all the more marked appearance of typhoid fever. Cough is often present, and from this and other symptoms, as the picking of the nose, etc., worms are supposed to be the cause of the affection, and hence one of its names.

Worm Fever. The child rapidly emaciates, and becomes much debilitated, falls into a stupor, with the eyes half-closed, and presents all the appearance of disease of the brain. Or the cough develops into a complete attack of bronchitis. The disease is often observed to abate its force, and then a relapse occurs, with aggravation of all the bowel symptoms. Where there exists a tendency to tubercles, these develop, and a fatal result ensues.

How Treated. It is important that the diet should be mild, nutritious, and easy of digestion; the drinks of cold, mucilaginous form (such as given, p. 323). The bowels may be operated on by a mild laxative, as rhubarb and magnesia, followed, if necessary, by clysters (p. 341), or by castor oil. It should be remembered that the bowels are in an irritable condition, and, therefore, they should not be unnecessarily troubled. Chalk and ipecacuanha act well in small doses, two grains of the former to a quarter grain of the latter, and generally cause all the symptoms to improve. Should the fever and pain of the abdomen be very great, leeches to the part will greatly relieve these symptoms. The warm bath is of great value, or the whole surface may be sponged with warm water, much to the comfort of the little patient. Applications to the abdomen of fomentations, as hops, mush, etc. (p. 346), will aid in the treatment, and in protracted cases, blisters may be employed, with good results. If symptoms of brain affection occur, hot mustard foot-baths, cold to the head, leeches behind the ears, become necessary. When the discharge becomes offensive, with windy swelling of the bowels, turpentine may be given in mucilage, say five to fifteen drops, every four or five hours. If the symptoms subside, tonics

may at once be employed, as those given, pp. 360, 361. The utmost care must be observed as to the diet, lest indulgence lead to a relapse, and every precaution should be taken to guard against exposure of the body to cold and dampness. Exercise, at first of a passive form, in the open air, should be taken as soon as it can be borne, and gradually the patient should be brought back to its accustomed habits of diet, exercise, etc. If there remain symptoms of enlargement of the glands in the bowels, what are called alteratives, as the syrup of the iodide of iron, ten drops, three times a day, will be useful; and this may be aided by rubbing in iodine in liniment, or the tincture of iodine may be painted freely over the parts.

Teething Fever, or troubles of dentition. Few children pass through the process of dentition without more or less trouble. Frequently the general disturbance is out of all proportion to the amount of irritation observed in the mouth.

How Brought On. Dentition is more liable to go on easily and safely in cool weather than in the summer season. Coupled with the exhausting heat of summer, the evolution of the teeth gives rise to a variety of troubles, many of which prove fatal. More especially is this to be anticipated where the child is of delicate or diseased parents, or where it is imperfectly nourished, as by a sickly mother, the absence of the breast-milk, etc.

How Distinguished. The surface of the gum is hot and swollen, there is more or less running of spittle, the child is fretful, its face is flushed, it is constantly working with its fingers in the mouth, or bites on anything, as though to relieve the annoyance; at night the sleep is much disturbed, the bowels are affected with diarrhoea, generally of a mucous character, and there is more or less vomiting. In other cases, the skin is hot and dry, the mouth is filled with little white spots, aphthæ or thrush, and the child is seen eagerly to take the breast and in a moment drop it with an irritable cry. Under these circumstances, inflammation of the bowels, the brain, the stomach, etc., may at any time occur. Most usually, diarrhoea results, with great pain of the bowels, rapid emaciation, and an aggravation of all the symptoms. Convulsions are extremely liable to occur.

How Treated. The utmost care should be observed that the mother's milk should not be vitiated by excitement, undue exertion, improper food or stimulants.

If the gum is swollen, hot, painful, hard, this condition should be relieved by lancing, so as to give free passage to the tooth. Often every symptom is at once relieved, and under proper regimen the cure is soon effected. Should the fever still persist, unless the bowels are free, mild saline laxatives are useful. The thirst is best relieved by the free use of cold water. This may also be freely applied to the head, and the child will be greatly benefited by sponging the whole surface freely, either with cold or tepid water. If the diarrhoea be persistent, the astringents, as Nos. 139, 148, 162, with chalk mixture, paregoric, or Dover's powder, will soon check it. Applications to the abdomen of flannels wrung out of laudanum and sweet oil, or hop poultices, will greatly aid in the relief. Convulsions are best controlled by the application of cold affusions to the head, mustard the whole length of the spine, or chloral, the latter in a fourth of the dose recommended, page 357. Debility must be met at the proper time by cream punch, nourishing diet—often this may be in addition to the mother's milk—tonics, particularly quinine, or tea of cinchona (page 349). Perhaps, than the latter, there is nothing better for debility of the bowels, which often occurs with or follows dentition.

How Prevented. The child should be kept almost constantly in the open air, particularly that of the country; when possible, it should be removed from a city residence. The whole surface should be kept scrupulously clean; the clothing should be light and cool; the diet simple; the bowels carefully regulated; and the swollen gums may be occasionally rubbed with the fingers, or some not too hard body.

Scarlet Fever is known as scarlatina, scarlet rash, scarlatina maligna, or anginosa, putrid sore throat, etc. There is no difference between scarlet fever and scarlatina; they are both names for the same disease.

How Brought On. This disease is contagious in the fullest sense of that word. Still, many are exposed and escape. Though it may attack the same person twice, this is rare. Undoubtedly, it is

caused by bad drainage. Instances have often occurred where this disease only attacked the inmates of a house of which the drainage was imperfect, and where no possible source of contagion could be found.

How Distinguished. The patient generally, though not invariably, shows signs of loss of appetite, debility, fretfulness, headache, pains in the limbs, hot fever, sore throat, and an eruption about the second day. In some cases, the first symptom is a convulsion, followed by high fever and delirium. The eruption is a diffused redness, as if the skin had been uniformly scalded, commencing on the face and upper parts, but rapidly extending in a few hours over the whole body. On close examination, the eruption is found to consist of fine points very closely placed. The skin is swollen, extremely dry and harsh, with a burning feeling, which increases to the touch as the hand is kept upon it. The sufferer also feels this like a soreness or burning over the surface. The pulse is always very quick; the mucous surfaces are equally implicated, the tongue and throat being inflamed, swollen, sore, and often of a dull red color; the thirst is very great, and there is almost always delirium, unless the case be extremely mild. The mildest cases, known as the simple form, have a moderate eruption, scarcely any fever or sore throat. The anginose form is where the throat receives the full force of the disease, the inflammation being very great, and the part covered with a false membrane, which gives it the name of putrid sore throat, because of the offensive discharge from it. This form rarely fails to leave bad results, as loss of hearing, etc.

The malignant form is that where the first shock of the poison of the disease is so great that death frequently occurs in a few hours, without reaching the stage of eruption. If the eruption occurs, it is of a livid or bluish character, and recedes, followed by stupor and death. Or, if protracted, there is hemorrhage, diarrhoea, and vomiting. Death is almost certain.

How Treated. In the first or simple form, nursing is the most important point, and the avoidance of cold or dampness. The thirst and fever may be relieved by the free use of cold drinks, ice (see p. 322), and a solution of the acetate of ammonia, with the

sweet spirits of nitre, a tablespoonful of the former to a teaspoonful of the latter, in a tumbler of water. Great comfort is procured by sponging the surface with tepid or cold water. This may be repeated, as indicated by the warmth of the skin, etc. A favorite domestic remedy is rubbing the whole surface with lard, or a piece of fat bacon. This has the advantage of preventing the intolerable pain and itching from the eruption. Some prefer the use of glycerine, as more cleanly and less offensive. Better than either is cocoa-butter. When the throat is quite sore, leeches may be applied to the angles of the jaw, and a variety of gargles are employed, as pure cider vinegar and cold water, tincture of chloride of iron, a teaspoonful to a tumbler of water, or chlorate of potassa (p. 347); or the parts may be freely swabbed or brushed, every few hours, with strong solutions of the tincture of chloride of iron, equal parts of it and water. Care must be observed lest the debility be increased by the neglect of nutrition. The food must be of a liquid form, and perhaps nothing can equal milk in disease of any kind. Next, beef tea, mutton broth, chicken broth, etc. The tincture of chloride of iron acts as a good tonic, and may be combined, in feeble cases, with quinine, one grain of the latter to five drops of the former, in a wineglass of water. In these mild forms it is extremely important that the case should be guarded against cold or dampness, while at the same time proper ventilation is secured.

The putrid sore throat, or malignant form, often gives no time or hope to do anything. The effect of the poison of the disease is so depressing, that the system is unable to react; therefore, the principal indication is to use remedies of a stimulating character, such as hot baths with mustard or salt; mustard plasters to the spine, the extremities; heat in every way, as by bags of hot sand or salt, bottles of hot water (see p. 347); stimulation of the skin by frictions with strong mustard water. At the same time, stimulants may be given inwardly, as sweet spirits of ammonia, whisky, and preparations of cinchona. In addition to these remedies, a number have been suggested and highly lauded as of great value: thus, the sulphite of soda, in a saturated solution, given freely, is a supposed antidote to the disease. One remedy requires particular

mention; this is digitalis. It is made into an infusion of one drachm of the powdered leaves, with twelve tablespoonfuls of boiling water. When cold, a teaspoonful is given every two, three or four hours, according to age, and the effects produced. At first, the remedy is given, including the powder itself, by stirring up the grounds; as the symptoms abate, the clear liquor is given, and the intervals between the doses are lengthened. The attendants should be cautioned to watch the pulse, and if it flags, to suspend the medicine. This remedy is well worthy of extended trial. If the sulphite of soda were combined with it, its value would be greatly increased.

Should dropsy occur, as often is the case after the disease has abated, during the process of "skinning," as it is termed, the kidneys should be well acted on. The uva ursi tea, bitter-sweet tea, juniper tea (see p. 348), sweet spirits of nitre, jalap and cream of tartar, lemonade freely, every remedy that will cause a free flow of water to the kidneys, the bowels and the skin, is proper. To prevent dropsy, the patient should be kept in the house, and even in his room, for several weeks, until the skin has had time to resume its proper condition, and thus be less liable to cause the deposit of water.

How Prevented. By proper drainage, ventilation, and the avoidance of the contagion, much may be done to prevent this disease, or make it less dangerous. Three drops of tincture of belladonna, three times a day, or 10 grains of the sulphite of soda, as often, will lessen the liability to the attack.

Measles is known also as rubeola, French measles, black measles, morbili, and may be confounded with roseola or rose rash. The latter has no fever or throat symptoms.

How Brought On. This is due to contagion, and is rarely seen to occur a second time.

How Distinguished. The attack is ushered in by all the evidences of a cold. The nose runs, the eyes are red and watery, sneezing is frequent, and there is more or less cough. Along with this is more or less fever and debility. About the fourth day the eruption appears, first on the face, then on the chest and upper extremities, finally covering the whole body. It is of a dark red color, not fine pointed, and arranged in patches of a crescent shape. The fever

soon declines, and the eruption fades after three days, being followed by slight scaling of the skin. There is also a soreness of the throat, though generally of a mild form.

French or German measles is also called "rötheln." It appears like a mixture of measles and scarlet fever. On one part, the eruption strongly resembles the one, while on another, it resembles the other. Some regard this as an entirely separate disease, and claim that it does not afford any safety against an attack of either measles or scarlet fever.

Black measles is that form when typhoid symptoms occur, and the attack is complicated with hemorrhages, etc., and generally proves fatal.

How Treated. The bowels should be acted upon gently, by some cooling saline, as Nos. 94 or 100, p. 341; then the solution of acetate of ammonia may be given freely, with soothing and cooling drinks (p. 322), and if the cough and chest symptoms are severe, a half teaspoonful of ipecac syrup is well. In very many cases, scarcely anything more is required than care and nursing. In debilitated cases, and those of a typhoid form, quinine, stimulants, and nutritious food are required.

The "rötheln," German or French measles, will require the same treatment; it may be followed by dropsy, like scarlet fever, though it more closely resembles measles.

Mumps is also known as parotitis or inflammation of the large gland back of the jaw, called the parotid.

How Caused. This is purely contagious.

How Distinguished. The patient has a slight fever and uneasiness, and the gland swells, is red, hot, very painful to the touch. The swelling may be so great as to cause difficulty of swallowing. It may affect but one side, or both at the same time, or one after the other, at a long interval. In the course of six or eight days the disease disappears, and the gland is reduced to its proper size. In very rare instances, the inflammation may go on to form matter. The special point of danger is the great liability to "metastasis," that is, a sudden transfer of the disease from the original seat to the testicles, the breasts, or even to the brain. In the latter case it may prove fatal.

How Treated. The greatest care must be taken to prevent exposure to cold or dampness, as this is the great cause of "metastasis." The bowels may be gently moved, a light fever mixture given, as the acetate of ammonia, and the parts should be bathed with a mildly stimulating liniment, as mustard liniment (p. 353), and poulticed, to relieve the discomfort of the patient. Should metastasis occur, the effort should be made to cause a return to the original seat by stimulants over the gland, and by the same treatment as above to the new point of inflammation. A very hot Indian meal poultice is often effectual.

Chicken Pox, or varicella. This so much resembles a mild attack of varioloid that frequently the two are confounded. Indeed, some regard them as identical. It is the result of contagion.

How Distinguished. The fever, if any, is very slight. There is no backache, nor aching of the bones. The pimples are few in number and much scattered; they fill on the second day, scab about the fourth, and fall off quickly, rarely leaving any pitting. The eruption is not deep-seated, is never umbilicated or depressed in the centre, comes out in successive crops, and does not fill with pus or matter. It cannot be propagated by inoculation, and is not in the least affected by vaccination.

How Treated. This disease merely requires the bowels to be kept free, the avoidance of cold or dampness, and the use of some cooling medicine, as the solution of the acetate of ammonia.

Small Pox has been fully treated of on another page. It may be alluded to here to show the necessity of vaccination of children. An unvaccinated child, especially an infant, if exposed to this disease, is extremely apt to be attacked with the most violent form, either destroying its life, terribly marking and disfiguring it forever, or even causing injury of vision or blindness. Hence it becomes of the utmost importance that vaccination should be performed early, say at the close of the second month or the beginning of the third. Should the disease be prevalent, vaccination should be insisted on at once, even within a few hours of birth. Care is necessary in the selection of matter; only that from perfectly healthy children should be employed. For this reason it is better not to use a crust given by the parents, as one is unable to know to a certainty all

the circumstances attending the formation of such a crust, and thus may be the unwitting instrument of conveying serious disease. There is no doubt that diseases are thus conveyed, and every precaution should be taken. A crust should be rejected if the child from which it is taken exhibits signs of eruptions on the skin, or any other form of indisposition. To prevent positively every such undesirable result, the advice is given not to use, nor to let the physician use, any vaccine matter which has been taken from the human arm, but only that which has been derived from young and healthy heifers. This can now be had from any of a number of vaccine farms, at the most trifling expense. In this connection it may be well to notice the fact that a person liable to cutaneous eruptions is almost sure to have more or less breaking out under the excitement of the vaccination. This should be mentioned, as, otherwise, these are attributed to the use of bad matter by the vaccinator. In vaccinating, the left arm is preferred, as the one least likely to interfere with the pursuits of the person, and it is also preferred in children, that some uniformity may be had. The virus is softened with water into a creamy consistence, and inserted in the arm by scratching with the point of a dull lancet, or inserting it as in a pocket beneath the outer skin, or in any way, so that it may be brought in contact with the absorbing surface, and thus carried into the system. Too sharp an instrument will cause too free a flow of blood, which will be liable to wash away the virus. The less blood the more sure is the operation to be successful. The part is then allowed to dry, and generally about the end of the third day it begins to inflame; a small red pimple forms, which gradually enlarges, and when at its height is almost circular, depressed in the centre, and surrounded with a bright red ring of inflammation. About the eleventh day this ring begins to disappear, the pustule dries up and forms a thick, dark brown scab, which falls off about the end of the third week, leaving a honeycombed scar. During this process there is more or less fever, sometimes mounting so high as to cause a convulsion, or delirium. In rare instances, the process is delayed beyond the third day, and commences as late as the tenth or eleventh day, and runs on to a proper termination. Occasionally, the inflammation begins at once, and aborts, or fails to

form a vesicle, a thin scab forms and drops off in a few days. This is known as spurious vaccination, and is of no value as a preventive. In such cases the operation should be repeated, even several times, until the physician is satisfied of the impossibility of success. In these instances, it is believed that the patient is not so liable to be attacked with small pox, or would be most likely to have it in a very slight or modified form.

Revaccination should always be practiced when small pox is prevalent, as the susceptibility appears, in some people, to be renewed after a lapse of years, say five or seven years, on the average.

Chorea, or St. Vitus' Dance, or the Shakes, has been treated of on a former page.

Jaundice, or Yellows, in children, or infantile icterus, is frequently seen a few days after birth, and generally disappears of its own accord, in the course of a week. It appears mostly in feeble, delicate infants, and is perhaps due to want of cleanliness, preventing the proper action of the skin, imperfect action of the lungs, or exposure to cold. In obstinate cases, it may be due to obstruction of the bile passages, or even to malformation of these parts.

How Distinguished. The whole surface of the skin is of a yellow hue, the urine is of a saffron color, and the passages are of a light clay color, or even white.

How Treated. In ordinary cases, a mild laxative, as white walnut tea, p. 349, with pure air of a proper temperature, and cleanliness, will be all that is needed, and the coloring will speedily disappear. If the case is obstinate, and evidently due to obstruction by thickened bile or gall stones, hot baths, fomentations to the region of the liver, hot drinks, purgatives, such as No. 94, will relieve the case, by removing the obstruction. In the event of failure, dandelion tea (p. 350), and nitro-muriatic acid, one drop in water, thrice daily, will aid in giving relief. These latter, especially the acid, act also to cause the removal of the yellowness, after the cause of the affection is removed.

Worm Troubles are not so common as generally supposed. Almost every irritation or abnormal condition of a child is attributed by the parents, and others, to the presence of worms, and the little sufferer is often made worse by the resulting medication. With-

out giving all the varieties of worms, it will be sufficient to allude to three kinds: intestinal worms, seat or thread worms, and round worms.

How Caused. In very many instances these are due to improper or unhealthy food. Thus, meat of any kind, eaten too raw, may deposit the larvæ of worms, and thus lead to the production of these parasites in the system. Especially is this true of pork, which, made into sausage, half cooked, or ham, imperfectly cured, eaten raw, is often much diseased, and forms an appropriate nest for the deposit of the eggs of worms. Want of cleanliness, as of the regions near the anus, is generally the cause of seat worms, which often pass forward into the vagina, and set up an irritation there, causing symptoms of an alarming character.

How Distinguished. A child is generally supposed to have worms when it picks its nose constantly, loses its appetite, or eats voraciously; is generally irritable and peevish; is restless at night; groaning; grinding the teeth; complains of great itching about the opening of the bowels. Often there is an irritable, spasmodic cough; and occasionally, convulsions come on, which can be traced to no other apparent cause.

Diarrhœa occurs, of an irregular form, better one day, worse the next; the stools are offensive, slimy, and occasionally contain one or more worms. Vomiting, also, is often present. Add to this, the child constantly losing flesh, having dark rings around the eyes, indigestion, sleeping with the eyes half shut, and there is good reason to suspect the presence of worms, even when none are passed. The thread or seat worms cause a most intolerable irritation about the orifice of the bowel, even tenesmus, when a stool occurs; often a white discharge occurs from the vagina, in girls, which is due to the presence of seat worms. In the evening and at night, more or less fever is present, in severe cases. When the tapeworm is present, the most marked emaciation occurs, causing the patient to become literally "skin and bone."

How Treated. First, the worms must be expelled from the bowels. This done, the system may be enabled to regain its usual tone by the appropriate remedies. Seat worms, and those occupying the lower bowel, are generally readily killed and expelled by

the free use of clysters of salt and water, an ounce to a pint, thrown in warm, morning and evening; or of an infusion of quassia; or of a solution of the tincture of the chloride of iron, say four drachms to a pint of water; or of lime water. All these, when employed, should be thrown into the bowel freely. Their effect may be greatly aided by a brisk purgative, as cream of tartar and jalap, or seidlitz powder. Of internal remedies, for the other forms, a variety are used, and highly praised: as, wormwood tea, (p. 350); oil of turpentine, ten drops in molasses; pumpkin seed tea; and santonine. The latter is of great value, and is given in three grain doses, to a child of five to seven years, two or three times a day. Recently, the oil of male fern appears to have obtained great favor, in this affection. The patient is first purged moderately, and kept on low diet; thus preparing the worms for the full effect of the medicine; then, in the morning, the oil is given in a dose of ten to twenty drops, according to the age, mixed with syrup and mucilage. This is followed, in six or eight hours, by a full dose of some purgative. One or two doses generally remove all the worms, and the cure is completed by the use of tincture of chloride of iron, with aloes; or five drops of muriatic acid, with infusion of quassia. Pumpkin seeds, also, should be taken on an empty stomach, and as they are harmless, they may be used very freely. Salt, eaten freely with the food, is also an excellent remedy for worms, being both preventive and curative. Iron and cod-liver oil will aid in building up the system, and are supposed to act as a means of prevention. In no case, however, ought the child to be purged and medicated for worms, unless it is quite positive that such are present. Rarely do they exist without some evidence being shown in the discharges; hence these should be carefully examined.

Hydrocephalus, or Water on the Brain, may be either acute, or sudden, or chronic, or gradual in its formation. This is also known as dropsy of the brain. Sometimes children are born with this affection; or it may cause their premature delivery, and consequent death.

How Brought On. This may be due to brain disease, to general

dropsy, to injuries of the head, or it may follow other affections, as scarlet fever.

How Distinguished. The chronic form is often very insidious in its approach; often the brain becomes so tolerant of the pressure, that scarcely any impairment of the bodily functions is observed. Even, in some, the mental powers seem but little disturbed, though generally it results in idiocy long before a fatal termination. Generally, convulsions occur, a slight fit each day, with a little twitching, etc. The enlargement of the head is scarcely noticed until the disease has existed for some time. The child wastes, in spite of all the nourishment, which it greedily takes; it finds the head too heavy, and therefore avoids the erect posture; the bowels are irregular; the vision is impaired or lost; crossing of the eyes often is early noticed; there may be paralysis, especially of the lower extremities, or one-half of the body is affected.

In the acute form, the symptoms progress with great rapidity; the head rapidly enlarges, the moulds of the head expand and the skin bulges out, the child suddenly becomes cross-eyed, stupid, lethargic, comatose, and dies, generally, in a convulsion.

How Treated. But little can be done. The only hope would be the evacuation of the water by causing every avenue to carry it off. Purging would cause watery stools, but might, if carried too far, complete the case by rapidly increasing the debility. The food should be of a liquid, highly nutritious form. Absorption may be promoted by rubbing iodide of potassa ointment over the whole scalp, previously shaven, or by blisters to the back of the neck, or to the scalp. Medicines to act on the kidneys may be given, as receipts Nos. 137, 147, etc., combined with a tonic. So soon as improvement is observed, quinine and iron should be given.

Marasmus is well known as wasting or decline; its technical names are infantile atrophy and tabes mesenterica.

How Brought On. Many children, especially those who are at the nursing age, are observed to lose flesh and pine away without any apparent cause. Unfortunately, in too many instances, without a careful inquiry, the little sufferers are still further injured by dosing with the thousand and one nostrums for children, and thus the stomach and bowels are permanently disordered, and digestion

is impaired, so that the food which is necessary for the improvement of the child only serves to act as a foreign body.

How Distinguished. Marasmus, to whatever cause it may be due, is marked by a slow, constant wasting; the sufferer loses flesh, becomes pale, requires a great deal of rest, exhibits no desire to join in the usual infantile sports, and, as the disease advances, it comes to look like a little old man, with a wrinkled brow, a head apparently too large for the body, limbs that have dwindled away to skin and bone. The skin becomes harsh and dry, the appetite is capricious, often being so voracious as to cause the attendants to believe in the presence of worms, which they think are devouring the food intended for the nourishment of the child. When this affection is dependent upon wasting disease of the lungs, really a consumption, there is more or less cough, expectoration, fever from the middle of the afternoon or at night, derangement of the bowels, generally constipation. When dependent upon disease or consumption of the bowels, the *tabes mesenterica*, the bowels are tender upon pressure, there are eructations of wind and food, sour stomach, constipation and diarrhœa alternately, fever, but no cough. When dependent upon insufficient or improper food, the child is constantly desiring the breast, or bottle, as the case may be; it takes the food eagerly and ejects it but little altered.

How Treated. The food should first claim the attention. If the child is at the breast, the mother's milk should be carefully examined, first, as to its quantity; second, as to its quality. If the supply is small and the child seems never satisfied, it should be supplemented by the administration of cow's milk properly prepared. Frequently the mode of preparation is by diluting it with water to the extent of one-half, or even two-thirds, and thus the child gets one pint of milk while taking three times that quantity of fluid, filling the stomach and getting but little nourishment. In quite young children, the dilution should be one part of water to two parts of milk, with sufficient white loaf-sugar to make it rather sweet. In older children, the pure milk should be used; and where it is difficult to procure pure milk, the condensed milk may be employed. Especially is this form valuable in the summer, when it is difficult to procure fresh, pure milk, or where the supply is

liable to be vitiated by keeping. To examine the mother's milk a portion should be drawn and allowed to stand for some hours, when its quality may be judged by the amount of cream formed, and the general appearance of the fluid. Milk should always be the nutriment for the child until the teeth are sufficiently formed to enable it properly to masticate the food. Starchy articles may be added to the milk, soft-boiled eggs, beef broths, etc., as may seem necessary to bring the child up to the normal standard.

When the stomach is in an acid condition, lime-water, or a little bicarbonate of soda, added to the milk, will correct this condition. As a tonic and appetizer, some of the bitter infusions are excellent, say Nos. 141, 142; or one grain of quinine, three times a day; or the elixir of cinchona bark. Where the necessity for an alterative is apparent, the syrup of the iodide of iron, ten drops, three times a day, will give the best results. When the tenderness over the bowels shows the presence of intestinal trouble, rubbing the abdomen with ointment of iodine, or painting with the tincture, will aid in changing this condition. Every day, the whole surface should be sponged with tepid salt water; the skin should be excited to its full duty, by brisk frictions with a coarse towel, or a towel dipped in salt water, and allowed to dry. Fresh air is of great importance, and, when practicable, the child should be removed to the country, or to the sea shore.

Scrofula, or Scrofulosis, is commonly known as the King's evil, because it was believed, in ancient times, that the disease could be cured by the touch of the king.

How Brought On. This disease, which is almost solely due to hereditary tendency, may be excited to full action by want of cleanliness, foul air, deficient or improper nutrition, cold and dampness.

How Distinguished. Scrofulous children are generally of a pale, flabby appearance, about the face and hands; with light, coarse hair; dull in expression; heavy and stolid; thick lips; teeth early decayed; large, clammy nose, with wide, open nostrils; a tendency to enlargement of the glands, especially of the neck. The eyes are weak, easily inflamed, with frequent attacks of inflammation of the lids, and the formation of what are called "styes."

There is also a great liability to discharges from the nose, and to a diarrhœa of a mucous form. Generally, however, constipation is an accompaniment. Every sickness occurs in an aggravated form, with slow recovery, often becoming chronic. Digestion is extremely apt to be impaired by the slightest causes. Extremes of temperature are borne with difficulty. Slight injuries produce ulceration, with slow or difficult healing. The bones are easily affected, and soften or die from trifling causes. Frequently, enlargement of the joints takes place, which is with great difficulty reduced. Deformities occur, as bending or shortening of the bones, curvature of the spine, flattening of the ribs, projection of the breast-bone. In short, the whole system evinces a diseased condition, with but little recuperative power. Hence, we have scrofulous ophthalmia; tabes mesenterica, or marasmus; slow enlargement of the glands; deafness caused by inflammation of the ear, and the destruction of its bones; discharges from the vagina of a thin, unhealthy fluid; diseases of the bones; white swelling or scrofulous inflammation of the joints; hip disease; spine disease, etc. In all these affections, there is a marked similarity in the accompanying symptoms. The child becomes listless, languid; is disinclined to play, especially at anything requiring much motion; swelling is observed at the point at which the disease is about to make its outbreak. The part is weak, tender, especially to the touch; soon, a dull, heavy pain commences, an aching pain, increased by motion of the part, and also at night, when the patient is in bed. If it is an aperture, as the nose or ear, a discharge occurs, of a thin, dirty, yellowish fluid, of a very unpleasant odor, generally due to decay and consequent discharge of portions of the bony structure. In the joints, great enlargement is seen, the ends of the bones forming knobs, and consequent deformity, and difficulty of motion. In every instance the neighboring glands are early affected, and are felt like hard peas beneath the surface. When the nose or throat is affected there is more or less coughing, with expectoration of a foul mucus, which causes nausea, loss of appetite, even vomiting. An examination shows the tonsils greatly enlarged, filling up the throat, interfering with the aperture of the inner ear, and thus causing more or less deafness. In these cases the child is observed to suf-

fer from deafness and difficulty of swallowing in every spell of damp weather.

Scrofulous children are also extremely liable to be affected with eruptions of all kinds, particularly during the progress of teething, and if they are caused to dry up suddenly, the disease breaks out elsewhere, in a more dangerous form.

When a discharge occurs from the vagina, in a child, it is very apt to be regarded as the result of something else, as of an attempt at rape; for this reason great care should be observed, lest a wrong be done, and an innocent person suffer. The history of the child should be carefully learned, its predisposition, its tendencies, if any, to such discharges elsewhere. In this connection, it should not be forgotten, as intimated on a previous page, that the presence of seat worms in the rectum, or their transfer to the vagina, will often cause discharges from the vagina.

When a child begins to fail, without apparent cause, the abdomen should be carefully examined, and if found swelled, tender on pressure, the limbs emaciated, the glands of the groin and those of the abdomen enlarged, as may be ascertained by careful manipulation, scrofulous disease of the mesenteric glands may be known as the cause of the trouble.

In scrofulous disease of the spine, almost the earliest symptoms are a tendency to stumble, a clumsiness, frequent falling, a tendency to cross the limbs involuntarily, both in walking and lying down. The power of walking is soon lost, especially if the diseased bones be low down in the spinal column. When high up, as about the neck, the child is observed to support its head on the hand, or on a table or other convenient support, and the head begins to sink between the shoulders. The bones project, and are tender on pressure, the muscles of the spine are wasted, and speedily curvature is observed, the affected bones being the point of departure from the true line. This may produce pressure upon the cord and paralysis of the corresponding parts, or it may result in what is known as ankylosis, or stiffening of the joints at the seat of the disease, leaving the patient more or less crippled.

How Treated. A patient of a scrofulous tendency requires constant care. It must be placed under the best possible influences

as to pure, fresh air, cleanliness, sunlight, food, exercise, clothing. A child properly protected by warm clothing, kept in the open air as much as possible, and properly nourished, will often be enabled to recover from such a tendency, and escape the results of its constitutional taint. Fresh air and sunlight are of great importance, and are sure to prove valuable factors in improving the general health of a scrofulous patient. Nourishment, in proper quantity and form, forms an additional and valuable aid. For the young child, milk, and especially that of a good, healthy nurse, is the first and best form of food. Later, to cow's milk may be added vegetables of easy digestion, and animal food. Soft-boiled eggs are generally acceptable to the stomach, and materially aid in the nutrition. Much depends upon the cooking, as the best food is not easily digested when either too much or too little cooked. As indigestion is a frequent accompaniment, the food preparation often increases the trouble. In addition to this, care should be observed lest the food be taken in too large quantities, and this is too often the case as convalescence occurs, and thus the progress to health is retarded or prevented.

A point frequently lost sight of is the drinking-water. In the vicinity of large cities, and particularly in their crowded streets, the water used is often very impure, and frequently is itself a carrier of disease. This is at the present time attracting the attention it deserves, and it is hoped will soon lead to an improvement which has long been needed, and which will greatly aid in the prevention of disease.

It cannot be too forcibly impressed upon the attention that those who are weak and delicate require pure, fresh air as a necessity, even more than the healthy. It has so long been the rule to confine such persons to the house, as though the outer air were poisonous, that it often requires the most earnest injunctions on the part of the physician to obtain obedience to his orders. House ventilation is avoided, from the mistaken idea of giving the child cold. It should be thoroughly known that fresh air can do no harm, so long as it is supplied without a draught. This may be accomplished in a variety of ways, as by partially opening a window, and interposing a screen, as a chair with a shawl thrown over it, to prevent the direct current of air. Overcrowded apartments must be strictly interdicted,

whether by night or day, in the dwelling or the workroom. When possible, the patient should be removed to a healthy locality, an atmosphere of a dry and elevated situation, in the country or at the sea-side. Exercise in the open air must be regular, and never omitted except in the most inclement weather. This may be on horseback, in an easy carriage, walking, etc. If so arranged as to be combined with pleasant recreation, so as to aid in the development of the muscles, greater benefit will be obtained. Fatigue should not be allowed, hence the sports, etc., must be watched and controlled, to prevent excesses.

Bathing is a valuable adjunct, keeping the skin in proper condition, and thus enabling it to throw off disease. If the patient is easily chilled, warm bathing is preferable, and promotes the circulation. Otherwise, the tepid bath may be employed. Sponging, followed by friction with coarse towels, or towels dipped in salt-water and allowed to dry, is very useful. When at the sea-shore, bathing must be practiced, but its results must be watched, lest a chill follow, and thus undo all the good accomplished.

Rarely is the cold bath of service. Almost always it is followed by a want of reaction, causing more or less congestion of the more delicate organs, and hence it proves positively hurtful. With some, a cold bath daily, to an infant, is regarded as a means of invigoration, a hardening process, which too often results in the death of its victim.

It is pleasant to know that fashion is at last becoming more reasonable, and permits her votaries to dress their children according to the dictates of good sense and propriety. The child should be fully protected against chilliness, especially in a climate liable to sudden changes. In summer, the clothing should be light, avoiding either extreme, as often a child is kept in a state of perspiration in warm weather for want of a little attention. Flannel next the skin, protecting the chest and bowels, should be worn until the warm weather has fully set in, and then should be substituted by some of the finer textures until all danger of sudden changes are past, or these may be continued during the balance of the year.

As to medicine, this must be a last resort, and at first should be of the mildest nature. The bowels should be regulated by mild

aperients, or, when indicated by clay-colored passages, those which arouse the liver may be employed, such as small doses of rhubarb, magnesia, calomel, blue pill, senna, or jalap.

To improve the digestion, the blood, etc., some form of iron will be of value, and here it will be important to find, by observation, which preparation is most appropriate—the syrup of the iodide, ten drops, three times a day, the tincture of the chloride, five drops, three times a day, the potassio tartrate (p. 361), or the pure powder of iron. Either of these may be combined with quinine, or cinchona, as in its agreeable form of elixir, which is most readily taken by children. Symptoms must be met as they arise. If the bowels are loose, the solution of the logwood tea (p. 348) will be an excellent remedy, aided, when required, by paregoric, etc., and fluid nutrition in proper amounts.

If the bowels are much affected, a special point will be the avoidance of exercise and the upright position; rest, in bed, is of the utmost value in the treatment of all forms of diarrhœa. But frictions to the entire surface, once or twice each day, should not be omitted.

The appetite may be restored by the use of mild bitter infusions, as chamomile, columba, or cinchona. Animal fats are highly useful in such cases. Hence the value of cod-liver oil; and if to this we add the syrup of iodide of iron, or some other of the preparations now so happily prepared by the skill of the chemist, the results will be still more beneficial. Such remedies require many months to obtain their full and lasting effects.

In enlargements of the glands of the abdomen, added to the above treatment should be the application of iodine to the surface; this may be by the use of the tincture, or of the ointment.

The same may be said of enlarged joints, with the addition of perfect rest of the part.

Recently a variety of remedies have been introduced, as iodized milk, made by dissolving one part of iodine in ten of alcohol, and mixed with ninety of fresh cow's milk.

All enlargements of glands may be painted with the tincture of iodine, or coated with the iodine ointment. In inflammation of the bones, an ointment of carbonate of lead, freely applied over the

seat of disease, often acts to arrest its progress. Burdock tea (p. 349) is an old and valuable domestic remedy in this complaint.

Rickets, technically known as Rachitis, is a want of nutrition of the bones and muscles, causing bending or breaking of the bones from slight injuries; muscular weakness; crooked limbs; curvature of the spine; nervous irritability; general tenderness, etc.

How Brought On. Perhaps the usual cause of this disease is want of food, or food of improper kind. It would also appear to be the result of bad ventilation, and want of sunlight. A distinguished observer declares "that wherever the rachitic child is dependent upon the mother's milk, the mother will be found to have menstruated during lactation, regularly, for several months, and the degree of rachitis to be in direct ratio to the frequency, duration, and amount of the menstrual flow." In short, the disease is the result of anything which impairs nutrition.

How Distinguished. Children with a tendency to rickets exhibit in their whole bony structure unmistakable evidences of the disease. The face is broad and square; the head is large and flat; the moulds or openings in the skull do not close until late; the veins are prominent; the spine is curved; the limbs, especially the lower extremities, are bowed, shortening the child so as to give it a squat appearance; the muscles are feeble; the child is generally deficient in vigor, mental as well as physical; the skin is thick, and of a dirty appearance; the teeth are late in appearing, and the child rarely can walk, or even stand, until long after the usual time. The child is spiritless, dull, languid; the appetite is poor; the flesh is flabby; the passages from the bowels are loose, dirty-looking, and offensive; perspiration occurs at night, and often this is excessive; the child gains no power over its muscles, and requires help in all its movements, though at first the muscles do not seem wasted, and preserve their contour. As the disease advances, the mental and physical powers retrograde, and a glance at the child, with its deficient mental powers, its crooked limbs, unsightly joints, and the shape of its chest, shows the whole trouble.

The glands often become enlarged, as in its congener, scrofula, but are softer, much larger, and not so easily moved as in scrofulous cases. The disease may last from one to three years, and

under proper treatment, and surrounding circumstances favoring, may be completely cured; though, when brought under treatment at a late period, deformity, to a certain extent, is liable to remain, particularly curvature of the spine, etc. Death occurs from exhaustion, the powers of vitality being unable to carry the system to a favorable termination; or death may ensue from some complication, as hydrocephalus, diarrhœa, convulsions, incurable changes in the larger glands, as the liver, spleen, etc.

How Treated. With a full knowledge of the causes inducing this affection, and of the nature of its changes, it is easily understood what would be the special line of treatment. In the early stages, when the patient is so fortunate as to come under the proper observation, much may be done to prevent its full development, and ward off the possible complications. The nourishment must be positive, and easy of digestion. The greatest care must be observed, to see that food is given at proper intervals, and in sufficient quantity, as well as of a proper kind. Too much stress cannot be laid upon the value of pure cow's milk for children, after weaning, or in the event of a failure of the breast-milk. Of course, the mother's milk, or that of a healthy young person, is to be preferred in all cases where it is possible to be obtained.

Combined with milk, other articles are valuable, as eggs, in the form of custard, or soft-boiled, rice, farina, corn starch, roasted potatoes, meats, etc. The same observations apply here as in regard to scrofula, as the great point is to remedy the difficulty by properly nourishing the bones, etc.

All exhausting discharges, as diarrhœa, etc.; all complications, as indigestion, constipation, etc., must be met as they arise, with the appropriate remedies heretofore indicated. The constitution must be toned up, strengthened, by tepid baths, sea-bathing, fresh air, always that of the country or seashore, if obtainable; tonics, as the preparations of iron, particularly those mentioned under that head, in Part IV; cod-liver oil; bone itself, as fine filings of fresh bones, in milk or rice-milk. Blackberry root tea (p. 349), or magnesia and rhubarb (p. 348), or chalk mixture, will generally relieve the diarrhœa; and if the stools are very offensive, castor oil may be given to cleanse the bowels, and then the vegetable astringents

mentioned (p. 348). A valuable aid in changing the character of the evacuations, is the addition of a few drops of the solution of chlorinated soda to each dose of the diarrhœa mixture. Quinine, in combination with iron, as the potassio-tartrate of iron, in cinchona tea (pp. 361, 349), or the tincture of the chloride of iron, acts well as a tonic. In many instances, the dilute acids combined with a bitter, act well in toning up the muscular system. Thus, the dilute nitro-muriatic acid, two to five drops, in gentian, columba, cascarilla, or cinchona tea, checks the excessive perspiration, strengthens the digestion, and, in fact, improves the whole system.

Occasionally, when the treatment is commenced at a late period, rest will become necessary, to prevent curvature of the limbs becoming greater, or great deformity of the spine, resulting from the softened condition of the small bones comprising the spinal column. This rest must be in a recumbent position, but must be combined with daily excursions into the open air. Or some form of apparatus may be employed to support the part until the bones have acquired sufficient hardness. Thus, when the seat of the affection is at the bones of the neck, the weight of the head may be taken from the bones by means of an appropriate sling, suspending the head from a bowed piece connected with an apparatus placed around the chest. Each deformity, or tendency thereto, will require its own apparatus, varied to meet the indications.

How Prevented. A child manifesting a tendency to rickets should be kept from an erect position, or the early use of its feet, until the bones have assumed a proper degree of hardness. Violent exercise, in older children, should be interdicted. Cleanliness, ventilation, full nutrition, are the prerequisites for the prevention of this affection, as well as the aids in its cure when it is established. Sunlight deprivation is too often a main exciting cause of this, as well as other diseases of children. Hence, our legislators would show their wisdom by prohibiting the building of houses, and dwellings, in the rear of tall factories, as well as upon streets of such narrowness as to preclude the entrance of the sun's rays, if at all, but for a short period of each clear day.

Fits, or Convulsions, Spasms, as they are often called, are always symptoms of some other affections.

How Brought On. Fits are very frequently the result of a loaded stomach, or a stomach containing articles either of difficult digestion, or wholly inappropriate for the action of the stomach's powers. Thus, hard-boiled eggs, heavy fruit-cake, minced pies, sour milk, nuts of all kinds, raisins, seeds and rind of fruits, sweet-meats, food in lumps or imperfectly chewed; in short, anything which, by its imperfect solubility, taxes the powers of the stomach, is apt to create so much irritation, by its presence, as to cause a reflex excitement of the brain, and the production of convulsions.

Again, in the beginning of some diseases, as measles, scarlet fever, small-pox, the first blow of the poison of the disease may be so overwhelming as to cause a convulsion.

Again, the progress of teething may be so difficult, and accompanied by so much nervous excitement, that convulsions result. Worms in the bowels are often regarded as the cause of convulsions, but these parasites are more frequently developed by the causes of decline in health which are themselves the exciters of the convulsive tendency. Impure air, air loaded with gas from a broken stove, or filled with emanations from a foul well, may be the exciting cause of disease, which is first manifested by a convulsion. Cold and dampness, by driving the blood from the surface and the extremities, and thus causing congestion of the spine and brain, may cause spasms. Fright, great mental emotion, suckling during a fit of passion, or other emotion, of the mother, may cause an attack of convulsions.

In some children there is observed a tendency to be attacked with convulsions from the slightest causes. In such cases, every form of disease is attended with fits. Some seem to inherit this tendency from an epileptic parent. Such cases, sooner or later, succumb to brain trouble, or grow up deficient in mental capacity.

How Distinguished. An advantage is gained in the treatment when it is possible to learn the cause of the convulsion, by the removal of which the attack may be relieved, or its recurrence prevented. The history and surroundings of each case will lead to a full understanding. Thus, convulsions occurring at holiday times, or on festive occasions, or soon after eating, will generally tell their own story. Here, the face is flushed, the head throbs, and there is

every indication of a loaded stomach. The child has been eating freely of a mixture of indigestible food, has been complaining of sick stomach, has shown signs of irritability and peevishness, perhaps has been sleeping in a disturbed way, when suddenly the convulsion occurred.

When due to teething, the state of the gums readily aid in ascertaining the cause, these being puffy, swollen, red, tender to the touch.

A convulsion occurring without any, or scarcely any, premonitory symptoms, would lead to the anticipation of an attack of some disease, as measles, scarlet fever, small-pox, especially when such diseases are prevalent and are occurring in the vicinity.

How Treated. The treatment must be directed, during a convulsion, to the shortening of it, and care in preventing injury to the head or limbs by the struggles. All tight clothing should be loosened, or better, entirely removed. The child should then be placed in a warm bath, to which mustard may be added; during this time cold should be applied to the head, either by cloths saturated, or by the douche, or by the use of a bladder filled with crushed ice. Should this fail to relieve the spasm, the child should be placed upon a couch, and a mustard plaster placed the whole length of the spine, extending on either side for an inch or two. A decided impression must be made before this is removed. If there is reason to believe that foreign matters in the stomach are acting to prolong the attack, a brisk emetic, ipecacuanha, tartar emetic, sulphate of zinc, should be given, and its effect encouraged by the use of draughts of hot water with salt or mustard. Injections should be thrown into the bowel, of salt and hot water, castor oil, oil of turpentine, to stimulate the action of the bowel, and act as a revulsive to draw the blood from the brain. In obstinate cases, convulsions may be broken up by inhalation of ether or chloroform. In rare cases, with a strong tendency to a return of the convulsions, the effect of these drugs may be continued until all such symptoms disappear. Of course, it would scarcely be necessary to make the artificial sleep very complete, only sufficient to control the convulsion. Chloral, by injection into the bowel, certainly has proved of value in these cases; a teaspoonful in a pint of water, of which a gill may be thrown up in a child of ten.

In the interval, or after the spasm has gone off, the indication will be to prevent its return and relieve any accompanying symptoms, or treat whatever disease may be thus ushered in. The bowels should be freely moved; the stomach thoroughly emptied, the teeth lanced, if necessary; restlessness subdued by narcotics, as, above all, chloral. Worms may be expelled by the appropriate medication; fever lessened by sponging with tepid water, and cold applications to the head; the force of the circulation diminished by small drafts of digitalis tea, a teaspoonful of the leaves to a quart of water. If there are marked evidences of a fullness of blood in the brain, leeches behind the ears, to the nape of the neck, or temples, will rarely fail to give great relief. In obstinate cases, a blister to the back of the neck, extending up and down, and allowed to draw well, will prove of great benefit.

Other complications should be met as they occur, and treated in accordance with the principles laid down.

Night Terrors, and excessive nervousness, are of frequent occurrence in childhood. Frights to children often terminate in convulsions, imbecility, or death. Those who have the care of children should be especially on their guard to use every endeavor to prevent frights, and to protect against the foolish habit of working on the fears of a child to make it behave properly. Not only is this very injurious, but it is liable to make children deceivers and liars, and its evil results often cling to them when grown to adult age. On the contrary, children should be kindly encouraged, and made to feel the protecting care of those around them. They should be constantly shown the absence of all danger.

A child will often suddenly awake in the night, with a frightened cry, and evidently impressed with a vague fear of something, and fail to recognize the presence of its protectors. This may last for several minutes, terminating in a fit of weeping, or it may again quietly fall asleep. Such attacks may occur nightly, or at irregular intervals. Rarely is it observed to return the same night. These are almost invariably the result of some irritation of the stomach or bowels, and are generally associated with constipation.

There is no reason to regard these symptoms as indicative of

brain disease, though a continuance might eventually lead to serious results.

How Treated. On the occurrence of such an attack, the child should be at once attended to, and in no case is it justifiable to seek to quiet it by harsh words or treatment. Its position should always be changed by turning it from the back, which is mostly its position during such an attack, to the side, or better, by raising it in the arms, and thus endeavoring to soothe and comfort it. Or it may be roused by washing its face with cold water, and a sup of cold water will generally be desired and prove refreshing. The child should not be allowed to nurse, which is the usual panacea of all infantile troubles, until it is thoroughly roused and quieted.

To prevent a recurrence of these attacks, the bowels should be carefully regulated. All excitement, particularly near the hour of sleep, should be carefully avoided. Exercise of a violent nature is never otherwise than hurtful, particularly, as is too often the case, about the bed-hour. A light in the room, and better still, the presence of an attendant, at least for some time after it retires, will greatly conduce to the prevention of these alarms. Care should always be had not to rudely waken a child from its rest, but in every way to promote sleep. This great restorer is needed by the child, who plays and labors with all its powers during its waking moments, and hence requires plenty of quiet sleep.

Perhaps the bromide of potassium may prove of value should an attack continue obstinate. Opiates, or the so-called soothing syrups, should be avoided, as sure to prove hurtful. The dose of the bromide of potassium for this purpose should be five or ten grains. Eating a raw onion just before bed-time will, with many persons, induce refreshing sleep. A glass of hot water (not warm, but *hot*), flavored with lemon or orange peel, has the same effect. Hop tea is another pleasant and efficient remedy for sleeplessness. Any of these may be tried, and where one fails another will be a success.



CHAPTER VIII.

AILMENTS AFFECTING PARTS OF THE BODY.

Snuffles—Stomatitis—Thrush—Sore Throat—Croup—Diphtheria—Whooping Cough—Coughs and Colds in Children—Infantile Pneumonia—Colic—Summer Complaint—Falling of Bowel—Bed-Wetting—Weaning Brash—Milk Crust.

Snuffles, Catarrh of the Nose, Chronic and Acute Ozæna.

How Brought On. This affection is of quite frequent occurrence in children, infants particularly, and is the result of careless exposure to draughts; dampness; imperfect drying after washing; want of care as to the clothing, as the exposure of the arms to the shoulder, by the foolish fashion of short sleeves, or the equally senseless and careless action of standing at a door with the little one's head uncovered.

How Distinguished. The attack commences by a constant sneezing; soon a little fever comes on, with watery eyes, and a thin discharge from the nose. The nostrils are more or less obstructed, and hence the peculiar noise in breathing which originates the name. Generally, when sleeping, the child lies with the mouth open, in order to breathe. In severe cases, the nostrils are so much obstructed as to interfere with the operation of sucking, and the child grasps the nipple, draws, and lets go in order to breathe. Hunger incites it to seize the nipple again, and again it is compelled to desist, and gives vent to its irritation in angry screams. Indeed, this may be carried so far as to cause debility and exhaustion.

Ozæna occurs in children of scrofulous or syphilitic taint, and is characterized by all the above symptoms, with the addition of a highly offensive and dirty discharge from the nostrils.

How Treated. In mild cases, care as to clothing, and a proper

degree of heat, will generally be followed by a complete cure in a few days.

In severe cases, debility must be prevented by spoon-feeding, the use of tonics, as quinine, iron, and even stimulants. The nostrils may be much relieved by the application, with a brush, of soothing articles, as cold cream, lard, glycerine; and if false membranes form, injections of alum, ten grains to the ounce of water; or nitrate of silver, two grains to the ounce, will aid in destroying them.

Where a scrofulous taint exists, the appropriate treatment must be used, as the syrup of the iodide of iron, the mercurials, in very small doses, etc.

Stomatitis, Nursing Sore mouth, or Inflammation of the Mucous or Lining Membrane of the Mouth, is of quite frequent occurrence in childhood. The mild form is most frequent, but occasionally ulceration takes place, and rapidly runs into gangrene. This affection is generally the result of a weak condition, as in delicate or scrofulous children.

How Distinguished. Generally, the trouble is first observed by the child having a difficulty in sucking; the saliva flows freely; as the nurses say, the child is "constantly slobbering;" the glands under the jaw are apt to be tender and swollen. There is more or less fever and restlessness; the appetite is poor; and there is pain on swallowing. Diarrhœa often accompanies this affection. An inspection of the mouth shows the presence of many small, white spots on the tongue, the whole of the mouth, and even the throat. Ulcerations soon occur at these points, and they are coated with a dirty, yellow covering. The points may remain separate, or they may run together, in which case it becomes a serious matter. In the severe cases, the gums are so ulcerated as to fall away from the teeth, and expose them; the mouth is hot, the breath highly offensive; the lips swollen. Should it continue, the parts assume a dark, livid color, the teeth fall out, the inside of the cheeks ulcerate through, exposing the cavity of the mouth, and the child generally dies from exhaustion.

How Treated. In mild cases, by securing cleanliness, ventilation, pure, fresh air in abundance, and proper food, no other treatment is

required. Many believe that the diarrhoea is due to the same condition occurring in the whole of the intestinal tract. No medicinal treatment is so directly useful as the chlorate of potassa. This is given in doses of two or three grains in sweetened gum water every four or five hours, say for a child of one year, and may be mixed with sugar and water. The mouth should be carefully kept clean by the use of washes of slippery elm infusion, or flaxseed; acidity should be corrected by lime water, soda, or magnesia. Sometimes, it is requisite to employ locally an astringent solution, as the acetate of lead, two to four grains to the ounce of water, and this is best applied by means of a brush. Occasionally, the nitrate of silver, two or three grains to the ounce, or the sulphate of copper in the same strength, are required, to stimulate the ulcers to heal. Should similar ones appear at the verge of the bowel, as sometimes is seen, the same remedies will prove beneficial. The diet must be carefully attended to, and the nurse changed, if requisite. Quinine and iron should be given if great debility exists, the best forms of which have already been mentioned, and the breast milk supplemented by broths, milk, and lime water, wine whey, etc.

When gangrene occurs, it is called "canker," or cancer of the mouth; this is generally only seen in children of a broken down constitution and of depressed vitality. It often follows low forms of fever, scarlet fever, measles, small pox, and is invariably attributed to the use of mercury by the physicians.

But little hope can be indulged as to a favorable result. The ulcerative process must be checked by the application of a powerful caustic; the best is the pure hydrochloric acid, carefully touched to the surface of the slough or canker by means of a brush, and again applied after an interval of twelve or fifteen hours, unless the progress is checked. The offensive condition of the mouth may be remedied by frequent washings with a proper strength of the solution of the chlorinated soda, one part to twelve of water, or a solution of the hydrochloric acid, two or three drachms to half a pint of water. Of course, the chlorate of potassa must be freely administered, with quinine or cinchona in some form, and full nutrition and stimulation, as needed.

Thrush, or "aphthæ," is also the result of impaired nutrition

and want of vitality, and is most commonly met with in children which are hand-fed or suckled by an unhealthy nurse.

How Distinguished. The child is fretful, attempts to feed, but leaves off as if in pain. The bowels are generally disordered. The mouth is covered with minute white spots, like specks of curdled milk. The whole lining of the mouth is dry, hot, and red. There are fever, depression, and in rare instances, swelling of the glands and offensive discharges from the bowels, followed by death.

How Treated. The first point will be the improvement of the food, which alone will, in many instances, suffice to cause a cure, if continued, with careful attention to the hygiene. The mouth may be carefully sponged with pure, cold water, after each taking of food, followed by the use of a solution of borax, twenty to thirty grains to the ounce of water. Some prefer the sulphite of soda, sixty grains to the ounce of water, and claim for it the very best results. Others use gargles and mouth washes of chlorate of potassa, alum, acetate of lead, and in severe cases, the nitrate of silver (see pp. 362, 363). Rhubarb and magnesia will act alteratively, and when there is weakness, tonics, as quinine, and some of the mineral acids, are valuable.

Sore Throat, or Swelled Tonsils, generally occurs in children of relaxed and scrofulous tendency, and is the result of exposure to cold and dampness, or may become chronic.

How Distinguished. The child swallows as if the act were painful, and if old enough, complains of having a sore throat. The throat, on examination, is red, and one or both of the tonsils are swollen, so as to materially encroach upon the passage. There is more or less fever. If not relieved, the symptoms are aggravated, the pain is intense and throbbing, the throat seems about to close up, when the abscess which has formed either breaks, or is opened by the physician. When it assumes a chronic form, the child is more or less deaf, from the obstruction of the inner ear by the enlarged tonsil; the child has a certain peculiar tone of voice, and the tonsils are seen to be greatly swollen. This state is increased on the occasion of damp weather.

How Treated. A cooling aperient should be given, to promote the action of the bowels, and aid in reducing the fever. Sooth-

ing drinks, as flaxseed or slippery elm tea, may be used with wine of ipecac, say twenty to thirty drops, every four or five hours, according to the urgency of the symptoms. Gargling with chlorate of potassa, and tincture of the chloride of iron (teaspoonful to a pint of water), will generally be found of service (see p. 347 for gargles). When the pain and swelling are great, leeches may be applied to the throat, or poultices of Indian meal mush, flaxseed, etc., may be employed. Some prefer the free use, to the outside of the throat, of hartshorn liniment, tincture of iodine, or even a blister. But if, from the throbbing, swelling, and pain, there can be no doubt of the formation of an abscess, poultices, as given, page 358, should be freely employed, until the abscess breaks, or is opened. In performing this operation, care is required to avoid severe, even fatal bleeding, which might occur if a large vessel were cut.

When swelling of the tonsils becomes chronic, gargles of an astringent character may be used, as alum, teaspoonful to half a pint, tincture of iron, the same quantity, etc., or touching them each day with the nitrate of silver will cause them to contract. This failing, the excess must be removed by the use of a cutting instrument.

Croup. This scourge of childhood is divided into two varieties, true croup, or pseudo-membranous, and false, or spasm of the larynx. True or membranous croup is regarded by some as identical with diphtheria, inasmuch as both are characterized by the formation of a false membrane in the throat. A discussion of this point would be foreign to the purpose of the present work, though it may be mentioned that in croup the membrane is formed on the surface, while that in diphtheria dips down, as it were, and forms beneath the surface of the mucous lining of the throat.

How Distinguished. In membranous or true croup, the child is attacked during the night, often without any previous symptoms, or, perhaps, a slight hoarseness and cough before retiring, by a sharp, shrill cough, which sounds exactly like the bark of a small dog. There is a sense of suffocation, hurried breathing; every movement shows the earnest desire for breath, and the fear of strangling. Generally, the cough is in distinctive paroxysms, and relief occurs

toward morning, or is the result of the remedies employed. Should, however, the disease continue, the inflammation goes on, the fever is greater, the voice is hoarse, the sense of suffocation becomes intense, the cough is constant, the child grasps at its throat as though to tear something away, the breathing is panting, and the tongue is thickly furred. The attacks occur at night, with an abatement of the symptoms in the morning; there is no expectoration; talking increases the pain, and the thirst is constant. This goes on, with shortening of the intervals; the cough becomes feeble; the voice is lost; drowsiness comes on, and the child sleeps and starts in terror, grasping wildly at those around, as if for relief. In fifteen or twenty hours, unless relief is obtained, coma or stupor comes on, and the child dies exhausted.

How Treated. No ailment requires such prompt, unremitting attention as this. Early medication, even where the disease is only apprehended, will often prevent further progress, and ward off dangerous results. A catarrh, with a suspicious ringing, barking cough, should be carefully watched. A warm bath for a quarter of an hour will relieve the spasmodic inflammatory tendency; then the little patient should be kept in a room, preferably in bed, with an atmosphere kept moist by the vapor of boiling water, and the full emetic effect produced by the administration of powdered alum. A teaspoonful may be mixed with double as much honey, and given at once (p. 345). Some regard this article as having a specific effect in relieving croup. Others prefer ipecac, as the syrup or wine, or mustard water. The warm bath may be repeated, if necessary, in a few hours, and the fever and inflammatory symptoms kept down by salines, with ipecacuanha, or tartar emetic. Should these fail, and inflammation fully set in, the most active exertions will be required. Wine of ipecacuanha may be given, say one to two drachms, according to age, every ten or fifteen minutes, until free vomiting results, and then its effects kept up until complete relief is obtained. Then it may be followed by the solution of acetate of potassa, with ipecacuanha. Alum is preferable, as less exhausting; and if debility is coming on, senega tea (p. 349), containing in each dose five grains of carbonate of ammonia, may be employed. When the advance still continues, the throat

must be painted with tincture of iodine, being careful not to allow it to cause a blister, while the powers are sustained with beef tea, milk punch, wine whey, etc.

A variety of other remedies have been found of use, as muriate of ammonia, three or four grains, and the gargle of lime-water given (p. 347). Other local remedies are the tincture of chloride of iron, with glycerine; or carbolic acid and glycerine.

Very excellent results have often been secured by causing the child to inhale the vapor of slaking lime, on the principle that it acts to soften and loosen the membrane. This may be employed, with care, at any period of the disease. Water should be poured on a piece of quick-lime the size of an orange, and the child held so as to breathe freely the vapors arising from it.

Tracheotomy, or opening the windpipe to permit the entrance of air, rarely succeeds, perhaps because it is rarely performed until too late to be of service. It is, moreover, an operation none but a skilled surgeon can perform, so we need not discuss it.

Spasmodic Croup, Spurious or False Croup, never has any false membrane or inflammation to occur. It is very mild, comparatively speaking, and yet resembles true croup in many particulars.

How Distinguished. The attack commences with a slight cold, followed at night by difficulty of breathing, slight fever, and the singular barking cough. All the symptoms of inflammation are absent, though there may be increased heat, great hoarseness, thirst, and a peculiar crowing respiration. Occasionally, these symptoms result in convulsions, or congestion of the brain. Or there may be along with it spasms of the extremities, clenching of the hands, etc.

How Treated. The emetic effects of powdered alum, given as recommended for true croup, are of especial value. Turpentine liniment or stupes may be applied to the throat (see page 346), or poultices of various kinds. Ipecacuanha, teaspoonful doses of the syrup, until vomiting is produced, is of great avail. The strength must be carefully kept up by nourishing food, and stimulants, if necessary, and after the subsidence of the attack iron and quinine will be useful.

Diphtheria. The treatment of this disease, and, in fact, everything relative to it, have been very carefully given on a previous

page. When the disease occurs in children, the symptoms are identical, though not so easily recognized. Many regard it as the same with membranous croup, though there is yet room to believe that diphtheria is the result of a special poison, with a tendency to the throat.

How Distinguished. Diphtheria is ushered in by symptoms of sore throat, high fever, marked debility, soon followed by acute soreness of the whole of the throat, which is of a deep red or livid color, and covered with a coating like dirty chamois leather. This may extend all over the inside of the mouth, down the throat, into the nostrils, etc. When it extends into the larynx there is a cough like croup, harsh breathing, like a hissing or whistling. In very many cases, death results from exhaustion, or stupor, the effects of the poison upon the system.

How Treated. If seen early, the free use of the chlorate of potassa gargle (p. 347), generally relieves the attack and prevents the extension of the disease. Combined with this, the tincture of the chloride of iron is of great benefit. Quinine, good nourishment, stimulation, all must be employed to aid in the treatment.

Gargles or swabbings with solutions of tincture of iron, carbolic acid, permanganate of potassa, and of lime-water (p. 347), may be used from time to time, though care should be taken lest, by roughness to the diseased parts, injury be done and bad results follow.

Whooping Cough, or "Pertussis," is rarely seen except in children. It is caused wholly by contagion, and generally occurs but once.

How Distinguished. The premonitory symptoms are those of bronchitis, which is followed by a cough returning in spasms. In the intervals, the child exhibits but little appearance of anything untoward, when suddenly a paroxysm occurs, which lasts even for several minutes. The whoop is so peculiar that it is quite easy of recognition. The cough commences and continues as a series of short, violent efforts to relieve the throat, and at times results in bleeding at the nose, eyes and mouth. The face becomes suffused, the eyes are injected, the head aches, and the child ceases, and falls back exhausted. All cases do not have the peculiar whoop. The matter brought up is thick, ropy; sometimes mixed with blood

and pus. Or the efforts may bring on vomiting, when the food recently taken will be mingled with the expectoration.

The duration is about six or eight weeks, rarely less, often much longer, even for months.

It may be complicated with congestion of the brain, of the lungs, deafness, pneumonia, and convulsions.

How Treated. Care and avoidance of exposure to cold and dampness are required, even in the mildest cases, to avoid the setting in of other allied diseases. But it is not advantageous to keep the patient constantly in the house. The next point is to moderate, if possible, the force and frequency of the paroxysms. If the cough is tight, expectoration may be aided by squills, ipecacuanha, or other similar remedies. (See Nos. 144, 145, 155, pp. 349, 350.) Fever, when present, is relieved by the solution of acetate of ammonia. For the moderation of the spasms, an almost endless variety of remedies have been tried. Of these the best are the bromide of ammonium, coffee, tea of chestnut leaves, or of clover, hay tea, cinchona tea, and chloral.

Almost any one of these articles will modify the attack, often will shorten it. Quinine in small doses, or chloral in the same way, have been highly lauded. Inhalations, as of the common illuminating gas well diluted, steam from boiling water, or the same containing tar, cubebs, and carbolic acid, have been found of service (see page 351). Perhaps the best plan to relieve the force of a paroxysm, when prolonged, is the inhalation of chloroform, one or two drops at a time. The general health should be regarded, and tonics, especially iron, cinchona tea, or quinine, should be employed when required.

Strangulation has been known to occur by a sudden commencement of a paroxysm during eating. Therefore, children thus suffering should be watched at their meals, and be required to have their food cut fine previous to placing it in the mouth.

As an efficient formula in this disease, we give the following:—

WHOOPIING COUGH MIXTURE.

Take Bromide of Potash,	two drachms
Tincture of Belladonna,	two drachms
Syrup of Wild Cherry Bark,	three ounces.

Mix, and give a teaspoonful every two or four hours, as required.

Coughs and Colds, in children, are constantly occurring as the result of exposure to cold and dampness, and the neglect to which so many are subjected.

These should never be neglected, but at the outset should be subjected to appropriate treatment. Early care might thus prevent a dangerous catarrh, pneumonia, croup, etc. Proper clothing, protecting the arms to the wrist, and the feet and legs, and particularly the chest, will act as a preventive of many of these affections, which, while not fatal in childhood, may lay the foundation of serious diseases in after-life. A mild expectorant, with proper tonic treatment, will often speedily relieve these incipient symptoms.

Bronchitis is known by its commencing as a common catarrh, which rapidly becomes aggravated, with light fever, hurried respiration, quick pulse, light dry cough, hoarseness. As it increases, the breathing is labored and wheezing, the cough is painful, with more or less rattling in the chest, the appearance is languid, and debility rapidly ensues. Choking up of the smaller tubes with the free mucous discharge may occur, and lead to a collapse of that part of the lungs. Or the smaller tubes may be attacked by the bronchitis; the inflammation is then very high, and pus is soon formed, and death is almost sure to follow.

How Treated. Slight cases will only need care, a warm atmosphere, good, nourishing diet, and soothing drinks. If necessary, a saline mixture may be given, to act on the bowels, as No. 101, p. 341. When the case is severe, with high fever, some emetic, as mustard or syrup of ipecacuanha, will be needed, warm baths, and the promotion of free perspiration by warm drinks. The carbonate of ammonia, in three-grain doses, will prove of value, combined with senega, to promote free secretion. The following prescription is a useful one:—

COUGH MIXTURE.

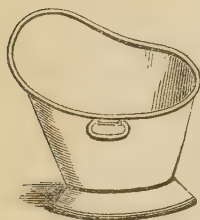
Take Carbonate of Ammonia,	one drachm
Syrup of Senega,	half an ounce
Paregoric,	half an ounce
Balsam of Tolu,	one ounce.

Half a teaspoonful, three or four times a day, to a child ten years old.

A good treatment for an ordinary “hard cold” in children is,

as soon as it commences, to give the child a warm "hip-bath," in salt water, or mustard water. For this purpose, the form of tub exhibited in Fig. 101 is most useful.

Fig. 101.



A "Hip-bath" Tub for Children.

The hip-bath also furnishes a very convenient and powerful means of acting upon the lower part of the spinal marrow and the pelvic organs. It may be very well taken in the vessel of which the annexed drawing illustrates the form; it has the important advantage of well supporting the back, while the patient is

in the sitting posture.

When there is a large family, such a one comes frequently into use. After the bath, which should last ten minutes, the child should be well dried, and put to bed between blankets, and given freely to drink of a solution of acetate of potassa, a teaspoonful to a wineglassful of water, or else "cream of tartar water," made by pouring a pint of boiling water on an ounce of cream of tartar. Either may be sweetened to the taste. The next day the child may take half a teaspoonful of syrup of ipecac every three or four hours. This will generally break a cold in two or three days.

When the first symptoms are over, and a cough remains, one of the prescriptions, Nos. 144, 145, or 155, may be given; the last mentioned, well sweetened, is especially appropriate for children.

When the symptoms subside, tonics, good diet, and stimulants should be administered.

In all such cases, remedies containing much opium, or any of its preparations, must be used with caution. Many persons think if they quiet the cough the disease is cured, but they often thus, as it were, merely check the expression of the trouble which is endangering the child. The dose should always be small, and the result carefully watched.

Pneumonia, Lung Fever, or Inflammation of the Lungs, is another result of cold and exposure. Fortunately, it is not of very frequent occurrence in children, since it is a very fatal one.

How Distinguished. The disease commences rather suddenly, often in the night, with chills, cough, quick breathing, great heat

of the skin, rapid pulse, thirst, and general fever. Sometimes, it may even commence with a convulsion. As children almost always swallow the spittle, the characteristic sign of rust-colored saliva is lost. As the symptoms so much resemble those of acute bronchitis, the distinction is made out by the greater severity of the symptoms, the intense heat of the chest, the quick, feeble pulse, the panting breathing, and the lung sounds on placing the ear to the chest. A marked symptom is the wide expansion of the nostrils, and their rapid movement.

How Treated. The bowels should be kept open by mild purgatives. Expectoration may be aided by emetics, as recommended above, and the fever checked by the solution of the acetate of ammonia. The diet should at first be light. The chest may be occasionally irritated by mustard plasters, or the application of turpentine in stupes or fomentations (p. 346). Blisters are rarely beneficial, and are best omitted. To relieve restlessness, bromide of potassium, in five-grain doses, and the warm bath, will prove of service. If debility come on, beef tea, wine whey, and stimulants are necessary, though this tendency must always be borne in mind, and the strength carefully guarded throughout.

Iron, and cinchona preparations are requisite to aid the convalescence. The cough which is often left behind must be managed as above directed under that heading.

Colic, or Gripes, in children, is a disease of constant occurrence. It is also regarded as a neuralgia of the bowel.

How Brought On. This affection is the result of indigestion, as brought on by improper food, overloaded stomach, etc., or it seems to have an intermittent tendency, recurring at a certain hour, generally late in the afternoon, day after day. Or it may be brought on by cold and dampness to the feet. Often, carelessness, and want of proper changing of a wet diaper, will cause such an attack.

How Distinguished. Generally, there is more or less wind in the bowels, as shown by the distention of the abdomen, and the drum sound on percussion. Again, very little wind may be present. The child becomes fretful, draws its knees up to its chest, cries suddenly, and becomes quiet. These actions may be repeated at intervals, often very short, sometimes of greater duration, but

rarely disappear until wind has passed from the bowels, or perhaps a thin and frothy discharge occurs. All these symptoms may be exaggerated, the screams are piercing, the contractions of the limbs are almost spasmodic, the face exhibits great suffering, the child is bathed in perspiration, and yet, when the attack passes off, the child appears as well as usual. These attacks are often observed in the cases of children otherwise remarkably healthy.

In rare cases, the attack becomes convulsive, almost epileptic, though the intervals are marked by apparent health.

How Treated. The paroxysms are so distressing that the earnest desire is to give the child immediate relief. This wish is met by the warm bath, hot fomentations to the abdomen, particularly flannel wrung out of hot mustard water (p. 347); poultices of hops; mustard plasters, not too long continued; spice poultices, etc. At the same time may be given by the mouth, camphor in water, as No. 193, p. 357, or oil of turpentine dropped on sugar, say three to five drops every two or three hours. A favorite and highly useful mixture is chloroform, one drop, syrup of gum arabic, and mint water or anise water, of each half a teaspoonful, repeated every fifteen minutes, until complete relief is obtained. The bowels should be well opened by stimulating enemas, as of castor oil with a few drops of turpentine, or that given, No. 102, p. 341, repeated as necessary. A few drops of laudanum, or a half teaspoonful of paregoric, may be considered as safe and useful. Other remedies, as bromide of potassium, and chloral, may be employed, both by the mouth and by enemas, as necessity may require. In all cases, constipation must be relieved, and acidity corrected, by the appropriate remedies, as heretofore mentioned. In some cases, mustard plasters to the whole length of the spine, or stimulating frictions over it and the stomach, prove of great service.

How Prevented. By avoiding constipation, and the consequent accumulation of wind in the bowels, much may be done to prevent attacks of colic. Thus, occasional enemas of molasses, salt and milk, or the administration of magnesia, with belladonna, or hyoscyamus and ipecacuanha, will generally keep the bowels in a relaxed condition. Then the feet should always be kept dry and warm, and the linen changed when wet, lest its coldness induce an attack.

Summer Complaint, and *Cholera Infantum*, are almost wholly confined to the hottest parts of the summer months. By some, these are regarded as names of the same disease. By others, the former is considered as the ordinary diarrhœa of children, occurring during the entire summer.

How Brought On. Diarrhœa, in children, is the result of indigestion, eating improper food, as unripe fruit, or fruit partly decayed, difficult teething, exposure to cold and dampness, especially wet feet. Still, at certain times, the disease prevails much more extensively, appearing to attack almost every infant in certain localities.

Cholera Infantum almost never has been met with beyond the limits of the United States, and generally prevails extensively, during the hottest months, all over the country, but particularly in large cities, though by no means being confined to the poorest and filthiest localities, but as often attacking children placed under the best provisions for light, air, cleanliness, etc. This disease rarely attacks children above two years of age, mostly during the first teething, and for this reason the second summer is always regarded with fear and anxiety. It is one of the most fatal diseases of childhood. Any cause impairing the vitality, as general constitutional disorder, deprivation of the breast, etc., is sure to induce an attack. For this reason, weaning is often postponed until after the second summer. Yet, in many instances, when the breast milk is becoming impoverished, and unsuitable for the child, it would be far better to wean the child, and commence a proper diet with it some weeks previous to the setting in of hot weather, rather than attempt to carry it through the heated term on nourishment manifestly improper. These remarks would apply where pregnancy has again commenced; where the teeth are well out, and the child is prepared for other food; where, for any cause, the breast milk is impoverished, or its supply insufficient.

Again, when the child is so situated as to rely wholly upon cow's milk, or other artificial feeding, the milk furnished should be carefully examined, to be sure that it is pure, fresh, and not weakened by water or other adulteration.

How Distinguished. Summer complaint and cholera infantum will be considered as synonymous terms, as the same principles for

the treatment of the ordinary diarrhœa of childhood will apply in every instance, guided by that common sense which is so eminently necessary for the treatment of all disease.

In some cases the attack is quite sudden; the child is seized with vomiting, purging, slight fever, great desire for drinks, restlessness; the stomach and bowels being emptied, the discharges become watery, whitish, ill-smelling, or even odorless. The stomach is very irritable, rejecting suddenly and forcibly everything that is taken into it. The progress is rapid; in a few days, or even a few hours, the child comes to resemble a wilted, aged person. The pulse is quick, small, like a thread under the finger; the tongue is white and slimy; the skin is dry, dirty-looking and harsh; the feet and hands are apt to be cold. Generally, the feverish symptoms increase late in the afternoon. The child may express great suffering, as if in pain, or may lie prostrate and uncomplaining; generally, there is great restlessness, with drawing up of the knees and moaning; constant tossing and changing of the position, and often sharp, shrill screams. The abdomen is more or less swollen, and tender to the touch. Frequently, the vomiting ceases early, though the diarrhœa continues, or increases in violence; everything seems to pass through the bowels without any effort at digestion, in a very short time after it is taken. Delirium or other symptoms simulating cerebral affection come on, and the attendants, even the physician, are led to believe that the brain is inflamed, though these symptoms are solely the result of the great exhaustion, and deprivation of the brain of its proper supply of blood.

Very many cases succumb within twenty-four hours, though the majority are slower in reaching a fatal termination. Here, the emaciation is extreme, the eyes sink in, the whole face is pale, the nose is sharp, the lips are thin and dry, the skin is drawn over the cheek bones and forehead so tightly as to be smooth and glistening. The child is but half conscious, lies with the eyes partially closed, and permits the dust and even insects to settle on its eye-balls without noticing them. Every symptom betokens the approach of death, which, singularly, is often long in coming, giving hope of a recovery, long after the child is really in the agonies of death. The

child generally dies in an unconscious state; occasionally it is attacked with convulsions.

Favorable symptoms are, a decided change in the character and frequency of the passages, desire for food, quiet slumber, reduction of the pulse, moisture of the skin.

How Treated. The first and most important measure is the removal of the child to a cooler atmosphere, of the sea-shore, best of all; the pure country air; or taking it out early in the morning, beyond the built-up portions of the city, where it can breathe a purer air. Excursions on the water, as in the ferry-boats of our large cities, will aid greatly in inducing a favorable change. Under any circumstances, the air of the apartment occupied by the child must be completely purified by free ventilation, the most positive cleanliness, the avoidance of many persons in the room. The air of the room must be kept dry, and free from anything that will vitiate it, as cooking, tobacco smoke, etc. The clothing must be light, clean, and dry, and sufficient to protect the child from atmospheric changes, but not to keep it too warm. The bed should be cool, hence feathers should be avoided; a mattress, or a blanket only, thick enough to make the couch comfortable.

When there is reason to suspect teething as a cause, the gums should be cut, if necessary, as will hereafter be described, and if they are hot, swollen, and tender, rubbing them with a piece of ice will greatly relieve their irritability. The whole surface of the body should be bathed night and morning with tepid salt water, and then the skin should be excited to action by frictions with a soft towel or the hand. The diet should be restricted to the breast-milk, or, in older children, to pure cow's milk, properly prepared, not too much diluted; "condensed milk" is highly esteemed by many as the very best food for these cases. Overloading of the stomach must be very carefully guarded against. Cold demulcent drinks or ice may be allowed.

The diarrhœa in its beginning may often be speedily checked by a slight astringent, as acetate of lead, one-fourth to one-half a grain, and three or four grains of prepared chalk every two, three, or four hours, according to the urgency of the symptoms. The irritability of the stomach can often be relieved by a few grains of magnesia,

rubbed up with white sugar, and placed upon the tongue; or by three or four drops of dilute sulphuric acid in syrup and spearmint water every hour. Other remedies for the vomiting are camphor one fluidounce to ether one fluidrachm, given in doses of two or three drops at short intervals; or a few drops of turpentine, or creasote, in a solution of acetate of lead, say, acetate of lead five grains, dilute acetic acid three to five drops, sugar two to three teaspoonfuls, and water one ounce, given in teaspoonful doses every hour till relieved. When all else fails, a blister may be placed over the stomach, followed by a poultice of bread and milk, or of flaxseed, etc. When there is great pain of the bowels, leeches may be applied, and followed by hop or other soothing poultices.

Should brain symptoms appear, leeches may be applied behind the ears, to the temples, cold lotions or the ice-bag to the whole of the scalp, stimulants to the lower extremities.

One of the most valuable remedial agents is the application of stimulating liniments to the whole length of the spine, and the abdomen. This is done in the belief that the counter-irritation will act to draw away the irritation from the stomach and bowels. Such liniments are mentioned, Nos. 164, 166, and 171 (p. 353).

When the symptoms begin to improve, the diarrhoea may be checked by a continuance of the acetate of lead, etc., combined with small doses of ipecacuanha; or the vegetable astringents, as mentioned on pages 348, 349.

Should the disease tend to become chronic, perhaps the best remedy will be the tincture of the chloride of iron given in syrup and water, in doses of three to five drops every two, three, or four hours, according to age. Laudanum or paregoric, in appropriate doses, may be used cautiously, if required by pain. A decoction of blackberry root (p. 349) has been found of especial service. What is commonly known as "thickened milk," milk boiled and thickened with flour, or rice flour, enjoys a high reputation in these cases.

Quinine in small and frequent doses will act as an efficient tonic. The aromatic spirits of ammonia, in doses of ten to fifteen drops, in syrup and water, often proves an excellent stimulant, and quiets the irritability of the system.

In closing this important subject, we append the following list of *things to be done* when a child is suddenly attacked, in summer, with vomiting, purging, and prostration:—

1. Put the child for a few minutes in a hot bath, then carefully wipe it dry with a warm towel, and wrap it in warm blankets. If its hands and feet are cold, fill bottles with hot water, wrap them in flannel, and lay against them.

2. Place over the belly a mush poultice, or one made of flaxseed meal, to which one-quarter part of mustard flour has been added, or flannels wrung out of hot vinegar and water.

3. Give five drops of brandy in a teaspoonful of water every ten or fifteen minutes; if the vomiting persists, give this brandy in the same quantity of milk and lime-water.

4. If the diarrhœa has just begun, give a teaspoonful of castor-oil, or of the spiced syrup of rhubarb.

5. If the child has been fed partly on the breast and partly on other food, the mother's milk alone must now be used. If the child has been weaned, it should have its milk-food diluted with lime-water, or should have weak beef tea, or chicken water.

6. Give the child cold water to drink, freely.

7. Have the soiled diapers or the discharges at once removed from the room.

Falling of the Bowel, or Prolapse of the Anus, is generally observed in debilitated children, or after protracted diarrhœa. On the other hand, it may come on from constipation and the constant straining to extrude the hardened stools. In some, it occurs after every passage, or even if the child stands for a long time.

How Distinguished. The child is observed to suffer greatly, and examination reveals the presence of a red tumor at the opening, which is generally easily pushed back. If allowed to remain down long, it becomes strangulated, and gorged with blood, inflames, and may even ulcerate or become mortified.

How Treated. The reduction should be performed at once, by anointing the parts with sweet oil, lard, etc., and then gently pressing it back, and being sure to see that it is completely returned, and no portion allowed to remain grasped by the sphincter or lower muscle controlling the opening of the bowel. If it is constantly

recurring, an injection may be thrown into the bowel, consisting of bismuth and catechu, No. 103 (p. 341). In cases where the part is much engorged and difficult to return, the free use of cold water to the part will relieve it, or a few leeches may be applied before any effort is made to return it. The parts may then be washed frequently with astringent lotions, as strong alum water; a decoction of white oak bark; or the two may be combined; or a decoction of galls may be used.

The accident must be prevented by keeping the bowels relaxed by proper food, fruit, etc., and by careful attention at the time of having an operation of the bowels. In severe cases, it becomes necessary to retain the bowel in place by a pad or compress, held on by a bandage. It is proposed to reduce the size of the opening, and thus retain the bowel, by removing a portion of the projecting folds. This has proved successful in some cases, but of course requires the hand of a competent surgeon.

Polypus of the Rectum is often mistaken for falling of the bowel, which it may closely resemble. It is not of common occurrence.

How Distinguished. A polypus may exist in the lower bowel for some time before its presence is recognized. It is generally marked by tenesmus at each evacuation, mucous or bloody discharges, and as it becomes larger, it acts as a foreign body, and annoys the child greatly. Finally, after one of these efforts, it is extruded, and shows like a lump or tumor of a dark red color, sometimes of a dirty yellowish appearance, and often covered with mucus, more or less bloody.

The red form generally bleeds freely from slight causes.

It is known not to be a falling of the bowel, because it is in the centre, and the finger can be passed all around it, and up to its root. In some cases, it does not protrude, and is only detected by an examination for the cause of the difficulty experienced by the child. Often, it drains away the blood and causes great prostration, etc.

How Treated. The only proper treatment is removal, if small, by twisting the polypus off by means of a pair of forceps; if large, by strangling it with a ligature, and thus cutting off the entire tumor. The lump is pulled down with a pair of forceps, and then

a waxed ligature is placed around the stem or root, and drawn tight. If troublesome bleeding follows, the sulphate of iron, freely applied to the point, will readily control it.

Bed-Wetting, or Incontinence of Urine, is a most annoying affection of children, and, singularly, is most frequent in colored children. This is often the result of habit; want of proper teaching; a lack of mental capacity; or it may result from a partial paralysis of the retaining muscle of the bladder. It most commonly occurs at night, while in bed, and hence its name. Especially is this likely to occur when care is not taken to have the child pass its water before going to bed. It may be the result of the urine containing irritating salts, and thus causing the child so much distress that it half consciously allows the urine to escape. In these instances, the child is observed to use the vessel very frequently during the waking hours. Some assert that the discharge of the water only occurs when the child turns on its back, and hence propose and insist on the good results of a blister to the back, to prevent the child from assuming that position.

How Treated. When the urine is being constantly passed, its irritating nature may be corrected by daily exercise in the air; avoiding exposure to cold and damp; alkalies, as lime water and bicarbonate of soda, five grains thrice daily, with mild, bitter tonics, as cinchona tea (p. 349), keeping the bowels free, improving the digestion, etc. Often, under this plan, the trouble will quickly disappear, and recovery be permanent.

In all cases, the child should have a light supper; be allowed to drink but little of fluids toward night, and empty his bladder the last act before retiring. As a medicine, the tincture of cantharides, say three to five or ten drops, three times a day, gradually increasing the dose, will eventually relieve the difficulty. Care should be taken to stop this remedy at once if painful and difficult urination is complained of. Belladonna, in repeated doses long continued, has acquired a great reputation. Two to five drops of the tincture of belladonna should be given in sweetened water every night.

Weaning Brash, or diarrhœa, or looseness of the bowels at the time of weaning, most frequently occurs during the summer, and is often the result of negligence as to the food. The utmost

care is necessary to see that the milk given the child is pure, fresh, and not too much, if at all, diluted. Generally, the diarrhœa is checked by these attentions, and the use of prepared chalk, and calomel, followed by a mild astringent. When protracted, the same principles will apply as given under similar headings heretofore.

Galling, or Rubbing, is most generally seen in fat children, and those of a scrofulous or flabby predisposition. Such cases require care as to cleanliness, and the avoidance of much friction, or soap and water in removing any soiling that may occur. Hence some mothers are said to be too cleanly, and clean the skin off their children. The parts should be dried by swabbing or patting with a soft cloth, in place of rubbing with a rough, coarse towel. After which, they should be dusted with fine starch, prepared chalk, oxide of zinc, lycopodium, etc. An excellent application is the oxide of zinc ointment, page 356, with care to prevent the parts from coming into contact. Some children are greatly relieved by bathing the parts with tepid water frequently, or with slippery elm or flaxseed mucilage.

Milk Crust generally occurs during teething, and while the child is yet nursing, hence its name; and it is commonly thought to be incurable until all the teeth are cut or weaning takes place. It usually appears in children of scrofulous tendency, and is, by its disgusting appearance, a great source of annoyance.

How Distinguished. Milk crust is an eruption, upon the face or head, of a number of red blotches, soon covered with pustules; these, itching and breaking, exude a whitish-yellow or greenish discharge, which hardens and forms a thick brown crust, beneath which the discharge continues to ooze, and constantly adds to the crusts. These crusts may appear only on the cheeks or chin, over a small space, or they may cover the whole scalp and face, forming a mask of hideous appearance. In the course of three or four weeks the discharge ceases, the crusts fall off, leaving a red, shining surface, very irritable, and liable to renew the pustules and discharge as before. This matter seems to act as a source of conveyance of the disease, as, wherever it is brought in contact with the skin, it produces more or less of a similar irritation. Fortunately, the disease leaves no scar or marks after healing.

How Treated. In the early stages, it will often speedily yield to proper regulation of the diet, mild laxatives, and soothing lotions. Small doses of magnesia and ipecacuanha, warm baths, pure, fresh air, are invaluable adjuncts in the treatment. Occasionally, it becomes necessary to add tonics, as potassio-tartrate, or syrup of the iodide of iron (p. 361), infusions of cinchona, dogwood, goose grass, etc. (p. 349). As local applications to kill the itching and cause the eruption to disappear, the ointment of nitrate of mercury, say one part to three of clean lard; or oxide of zinc ointment (p. 356); or camphor and chloral, equal parts, rubbed up till they melt, and added to glycerine or simple cerate, in the proportion of half a drachm to the ounce, or stronger, as may be required.

In very greatly protracted cases, the solution of the arseniate of potassa, or "Fowler's solution," in two-drop doses three times a day, will generally effect a cure, if persisted in.





CHAPTER IX.

ACCIDENTS, INJURIES, AND SURGICAL AILMENTS OF CHILDREN.

Lancing the Gums—Tongue Tie—Hare Lip—Wry Neck—Sore Eyes—Cross Eyes—Ingrowing Eyelashes—Styes—Running, or Catarrh of the Ears—Earache—Crushed Fingers—Hip Disease—Spinal Diseases: Curvature of the Spine, Inflammation of the Spine, Dropsy of the Spine—Club Foot—Weak Ankles—Knock-Knee—Rupture, or Hernia—Cancer—Swellings of the Glands of the Neck.

Of course, children are exposed to many of the same accidents to which adults are liable, and the treatment is generally the same. What it is, has already been described in Chapter VII. But children are also particularly subject to certain injuries and surgical diseases to which parents should be prepared to give early and intelligent attention. Frequently, years of misery or permanent disfigurement can be avoided by correcting a bad habit in a child, or by giving some apparently trifling symptom prompt care. Therefore the present chapter should be read by every parent with close study.

Lancing the Gums. The first teeth commence to appear several months after birth, and are usually accompanied by a flow of saliva; redness and swelling of the gums; heat and tenderness of the inside of the mouth; sometimes, general fever; more or less diarrhoea, and even fits or convulsions, as we have described more at length on a previous page. When these symptoms commence to threaten the general health of the child, the proper step is to lance the gums with a gum lancet.

To perform this operation, an assistant should hold the child firmly on his lap, fixing its head so that it cannot move it. The

operator then depresses the lower jaw with his left hand, holding in his right a gum lancet, or, if that is not at hand, a sharp penknife, the blade of which is wrapped in linen in such a way that the point is only uncovered for rather less than half an inch. At first, one cut should be made lengthways of the gum, and then a second one across it at right angles.

Fig. 102.



Lancing a Child's Gums

Figure 102 indicates the method of holding the child's mouth and making the first incision. When, as rarely happens, there is excessive bleeding after the operation, the gums may be bathed with alum water, or powdered galls may be sprinkled upon them.

Tongue Tie. This is brought about by the tongue being fastened to the floor of the mouth by what is called the "frænum," which is the thin membrane seen running beneath the tongue when we elevate it. In tongue tie this extends nearly, or quite, to the tip of the tongue, and fastens it down. The deformity can easily be remedied by nipping a very small notch, with the scissors, in the middle of the free edge of the frænum, and then, for several days after the operation, passing the little finger beneath the tongue two or three times, so as to tear the cut a little larger and prevent its edges uniting.

Hare Lip. The distressing deformity so called receives its name because the child's upper lip is divided by a cleft, as it is in the hare or rabbit. There are many opinions as to its cause, which need not detain us now. The only remedy for it is a surgical operation, and why we mention it here is to urge upon parents to have this performed within the first few months, or, at least, in the first year of life. Too many delay, out of timidity, and thus, when the operation is submitted to, a scar is sure to be left, which could be avoided by an earlier recourse to the knife.

Wry Neck sometimes arises from feeble muscular power on one side of the body. The child's head is drawn to the stronger side by the greater contractile power of the muscles, and after a time

he actually loses the ability to keep it in an erect position. As soon as the least tendency to this is noticed, the child should be encouraged to resist it; his general health should be strengthened by tonics, as quinine or iron; nourishing food; salt water baths; frictions with a coarse towel; open air exercise, and light gymnastics. The side of the neck opposite the inclination should be thoroughly rubbed with stimulating liniments or ointments, such as given in Part IV.

Erysipelas, a boil, a burn, or similar injury, or rheumatism, may either weaken the muscles of one side of the neck, or, by rendering their exterior painful, lead to "favoring" them by holding the head bent toward that shoulder. Therefore, whenever a child has such an injury in that locality, he should be watched, and this tendency prevented by prompt admonition, or by bandages and mechanical appliances. The latter, together with the surgical operation of dividing the muscles, is the resort of the physician in cases where the milder means we have mentioned fail.

Sore Eyes, or Ophthalmia. Not a few children, especially those who have in their constitutions a somewhat scrofulous taint, suffer from soreness, redness, and weakness of the eyes. In the morning they complain that the lids are "stuck together;" in the evening that they smart and burn. A bright light is painful to them, and they are frequently seen rubbing the eye, as if there was something irritating in it. On separating the lids, we can see that an unnatural redness is present, both on the edges of the lids and over the white of the eye. Small, red veins may be seen winding through the latter, and the lids often look thicker than is natural.

How Treated. Having satisfied ourselves by a careful examination, as directed on a previous page, that these symptoms do not arise from the presence of some foreign body in the organ, in which case its removal will cause the symptoms to disappear, we proceed to treat the eye locally, by an appropriate eye-wash. Clear, cool water is one of the best; water which contains a tablespoonful of salt to the quart, and mucilage water made by soaking an ounce of sassafras pith to the pint, are all simple and efficient eye-washes. Care should be taken that they freely run over the ball of the eye. The lids should be held apart, and the wash applied in a gentle

stream several times a day. When there is a scrofulous taint, recourse must be had to internal remedies and more active lotions. What we have said under Scrofula, in a previous chapter, will answer for the first. For the second, the eye-washes, Nos. 122, 123, 124, 125, page 346, will be found of great value. Salt water or mustard foot-baths often yield good service by drawing the inflammation from the eye. The bowels must be kept somewhat loose. The child should be warned not to use the eyes in any manner which causes pain. If light becomes quite painful, he must be kept in a darkened room. By such precautions he will be restored early, and avoid one of the saddest accidents to which man is liable—the loss of sight.

Cross Eye, Squint, Squinting, Strabismus. These names are given to a turning or deviation of one eye from the line of vision of the other. It is readily seen by an observer, and casts an unpleasant expression on the face of the sufferer; more than that, it is sure, sooner or later, to weaken the eyesight. It may arise from injury, but much more frequently it is caused by the bad habit contracted in early childhood of using only one eye, closing the other, or not fixing it on the object. An infant frequently laid on a bed on the one side of which is a blank wall and on the other a window, will use the eye toward the latter and not that toward the former, and thus may contract a permanent squint. Babes should always be placed in such a position toward the light that they shall use both eyes equally.

Older children, if the one eye becomes inflamed from a foreign body or other cause, very easily acquire the same habit, and must be closely watched in consequence. Violent mental emotions in nervous temperaments have the same tendency to cause squinting.

How Treated. Much can be done in early childhood to check cross-eye, by means of certain exercises, with the view of restoring the crooked eyes, consisting in directing the sight along different lines of vision, inward, outward, upward, and downward; by urging the child to be on his guard against using one and not the other organ. These means failing, an operation is the only recourse; the proper age at which it should be done is from twelve to fourteen years.

Ingrowing Eyelashes. Children who have suffered from inflammation of the eyes, and others who have not, are occasionally much annoyed by the tendency of some of the hairs which form the eyelashes to turn inwardly and thus irritate the ball of the eye. It leads to a sense of pricking and an irritable and watery state of the eye. To remedy this, the offending hairs must be carefully plucked out from time to time. This seems a simple and trifling matter, but, in fact, few manipulations require more care. The hair must not be broken, as its stiff stump will cause far more distress than its natural fine point. A pair of delicate forceps should be used, the hair grasped firmly between their points, and never be sharply jerked out, but removed with a slow, steady pull.

Styes, to which we have already referred, are peculiarly prone to appear on scrofulous and delicate children. They are minute boils which appear on the very edge of the lid, as small, red, tense swellings, with a sense of itching and stiffness. Sometimes, the inflammation excited entirely closes the eye, and considerable pain follows.

A sty should never be rubbed or squeezed; no incision is necessary; all that is required is a warm water dressing, applied by means of the bandage shown in Figure 93, page 240. The bowels should be kept regular by some of the many means we have recommended, the diet carefully regulated, and tonics, as of iron or quinine, be given for some time.

Running from, or Catarrh of the Ears. The inside of the ear has a natural secretion of wax, which serves to protect it in a variety of ways. In children, especially feeble and scrofulous ones, that secretion is liable to become increased in quantity, fluid or watery, and offensive to sight and smell. A great deal of injury is done by attentive mothers and nurses, who think the ears of children require to be cleaned out, by inserting into them the screwed-up corner of a towel. Dr. Hinton, of London, who has given much attention to diseases of the ear, says, "This practice may rank next to scarlatina among the causes of disease of the ear in children."

Local applications in such cases must be very carefully employed. Astringent injections are liable to do more harm than good. Atten-

tion to the general health, and a few drops of sweet oil poured in the ear, from time to time, are sufficient.

Another form of running from the ears arises from inflammation of the lining membrane of the canal of the ear. Poor and neglected children have this very commonly, and it may follow scarlatina in all classes. It is distinguished from the former by being preceded by uneasiness and pain in the passage, frequent spells of "*earache*," a sensation of itching, which leads the little patient to run his fingers and other objects in his ears, and the swollen appearance of the inside of the ear when examined in a strong light. The hearing is not generally impaired. The general health is almost always deranged. The discharge is not thin and waxy, as in the preceding variety, but is semi-purulent or mattery, often with a foul odor.

In this form, washing out the ear with a gentle astringent lotion is needed. The use of the syringe requires considerable care, on account of the tenderness of the parts, especially in children; it is best not to employ it. The child should lie down on the side opposite the diseased ear, and this should then be filled with the lotion by simply pouring it in. After it has remained in for two or three minutes, the child may turn and let it run out. As an appropriate lotion, use may be made of white oak bark tea, cold or warm; or, of water one pint, powdered alum one teaspoonful; or, of water one tumbler, sugar of lead ten grains. These lotions should be used three or four times a day, in the manner prescribed, and attention given to the general health of the child.

For the attacks of *earache* which accompany this disease, or precede it, the best application is *heat*. This can be applied in any of the ways mentioned on page 347; or, what we think a most excellent and convenient means, wrap a hot roasted onion in a flannel wrung out in laudanum, and bind it over the ear.

Crushed Fingers. The very common accident here mentioned may vary from a mere pinch to a crush which will leave one or more fingers or the whole hand a shapeless mass. No matter how severe it may be, the attendants must not despair. The hand, that "*divine tool*," as it has been called, is too important a member to be given up without the most strenuous exertions. Moreover, the experience of the last ten years has proven over and over again

that the most hopeless-looking crushings have been successfully treated by simple measures. That which should be employed beyond all else is *water*. Constant irrigation (as explained in chapter VI) should at once be commenced, using cold water in warm seasons and moderately warm water in cold seasons, taking care not to cease it abruptly, but at the end of three days diminishing gradually. The hand and fingers should be placed in a splint that will keep them motionless, and may be dressed with linen spread with clean lard, fresh, unsalted butter, or cerate. After the first inflammation has subsided, cloths wet with alcohol and water, carbolic acid and water (teaspoonful of carbolic acid to the quart), or the like stimulating lotions, may be employed. If proud flesh ("fungous granulation," as it is called by surgeons) appears, it may be checked by touching with burnt alum. Great cleanliness is essential. The strength should be kept up by nourishing broths and milk, and by stimulants, if the former do not suffice. Sleep should be secured by some of the means already mentioned, and the little sufferer placed in as comfortable a position as possible.

Hip Disease. The painful affection commonly known by this name is an inflammation of the hip-joint, passing into suppuration and a destruction of the head of the bone. It is essentially a disease of childhood, rarely commencing before the age of four years, and equally rarely after fourteen. The sufferers are most commonly of scrofulous constitutions, and generally feeble health; but the affection may arise in healthy children, in which case it can generally be traced to a blow, fall, or strain. The progress of the disease is usually slow, lasting for many years, and when a cure is obtained it is rarely accomplished until the age of puberty. During the earlier stages of the disease the patient may retain nearly all the appearances of perfect health, hence it is important that parents should learn to recognize what its first signs are. These are a slight lameness or limping, often amounting to nothing more than "favoring" one leg more than another, as in standing with the weight thrown on one in preference to the other; some little pain in the limb, which, however, is more frequently referred to the knee or its vicinity than to the hip; an appearance, when stripped,

of having one leg a little shorter or longer than the other, and a slight difference in the contour of the buttocks. In sleeping, the child is observed to take, in preference, a position which avoids throwing the weight on the affected joint, and if turned so as to rest upon it, will unconsciously throw himself back in order to remove the pressure. These symptoms, coming very gradually, may justly cause alarm, and the child should be submitted to the examination of a competent surgeon without delay.

Of the treatment, it need only be said that it must be directed to remove all pressure from the affected joint, that is, the child must be put into splints that will maintain its leg and thigh motionless for a long time. The apparatus to secure this end is complicated, and can only be applied by a professional man. We therefore omit its description.

Spinal Diseases. These nearly always commence in childhood, and as they are insidious and slow in progress, often progress beyond remedy before attention is directed to them.

Curvature of the spine is easily caused by occupations or postures that tax one side of the body more than the other, especially if at the same time the child is subjected to want of exercise. Sitting in school at too high or too low desks, and working in factories in constrained positions, are common causes of it. The first thing that attracts attention is a projection of one shoulder-blade or the other, or an elevation of one shoulder above the other, or of one side of the bosom, which is popularly said to be "growing out." The age at which it is generally noticed is from ten to sixteen. If the back be now exposed and the spine examined, it will be found to be curved from a straight line into one like the italic letter *f*, which will be seen to be the reason of the projection of the shoulder blade, etc.

The cure will depend chiefly upon removing the habit or necessity of using one side more than the other, giving the body rest, and on maintaining good general health. The child should sleep with a single pillow, so that the body be not bent; gentle and regular exercise in the open air should be practiced every day; standing or sitting in one position, for any great length of time, must be avoided; and the back should be rubbed every morning with a

coarse towel or horse-hair gloves. The clothes should be supported in some easy and natural manner. The many "braces" and stays which are advertised should be avoided, as generally they do more harm than good.

Inflammation of the spine is a disease which generally affects scrofulous children, but may arise from a blow upon the backbone, or a fall upon it. It begins with a feeling of languor, weakness, and coldness in the legs; inability to stand erect for any length of time; lameness and shuffling in the gait; disturbed sleep; costive bowels; and soreness in the back. If now the latter be examined by pressing with the finger on each process or vertebra of the backbone (see p. 49), one or two of them will be found tender on pressure, and perhaps a little more prominent than the others.

The treatment which is required is rest in bed in a horizontal position, and keeping the strength up with tonics, iron, etc. The sooner this is commenced and rigidly enforced, the better prospect is there of a cure.

Dropsy of the spine, or "spina bifida," is an affection with which some infants are born. There is a watery tumor on the backbone, at some point of its course, tender on pressure, and causing a loss of power of movement. Such children occasionally survive to adult life, but the complaint is incurable, and the probabilities of early death very strong.

Club Foot. This affection consists in a deformity of the foot, by which the part that touches the ground is not the sole, but the side of the ball or the heel. Generally, children come into the world with this malformation, but sometimes it is a consequence of fever, of long confinement and inactivity, of attacks of rheumatism, and even of irritation of the bowels or of the foreskin. Slight cases may generally be remedied, if taken at their very commencement, by daily extension with the hands, and frictions of stimulating liniments, together with tonics, electricity, and sea bathing. When these measures do not succeed, a surgical operation is necessary, which, by cutting the muscles which retain the foot in its false position, allows it to be righted.

Weak Ankles. This affection depends upon a weakness or relaxation of the bones and ligaments of the ankles, rendering the

internal border of the foot convex or concave, so that the child walks on one or other side of it. It is almost sure to be brought on if children are put upon their legs too soon, and persuaded to try and walk before their lower limbs have the requisite strength. In its treatment, the patient should wear shoes or boots with high heels, and with the inner edge of the sole much thicker than the outer. In severe cases, he must wear a tight-fitting boot, with a piece of whalebone or a frame of steel passing up to the middle of the leg, thus firmly fixing his foot in its natural position. This will have to be worn continuously, from six to eighteen months, before the cure is permanent.

Knock-Knee, or In-Knee. This frequent deformity, not confined to childhood, but most frequent then, consists of an inward yielding of the knee-joint, in consequence of the weakness of the ligaments and muscles destined to keep it in its proper place. It may be constitutional, arise from strains and such-like accidents, or be caused by insufficient nutrition. Putting an infant on a watery, floury diet, when it ought to have breast-milk, is a common link in the chain of causes to which it may be traced. It may proceed to such an extent that the child, at the age of eight or ten, is prevented from walking altogether without the use of crutches.

In a small proportion of cases, children recover from this deformity without any treatment. The probabilities of this fortunate result are much increased if the exciting cause of the complaint is removed, and the child placed under favorable hygienic surroundings. When this fails, mechanical support must be given. For this purpose simple padded wooden splints may suffice, a short one behind the knee, to prevent its flexion or bending backward, and a long one, reaching from the hip to the ankle, on the outer surface of the limb. They must be firmly, but not too tightly bandaged. Care should be taken to employ daily friction, and passive motion (p. 247), to prevent the joint from becoming stiff. In still more severe cases, a somewhat complicated apparatus of iron or steel is used, which it is needless to describe.

Rupture, or Hernia, may occur in children from the time of birth, or may be developed at any age, in those predisposed, after unusually violent exercise, as leaping, wrestling, or riding. When-

ever a child is observed to have a slight tumor or swelling at the navel, or in the groin, enlarging on coughing or straining, he should be warned of the risk of violent effort, and the first opportunity embraced to consult a competent surgeon. The permanent cure of a rupture, by means of a properly fitting truss, is more likely to be brought about in a child than in grown persons.

In very young children a rupture at the navel is not uncommon. It may appear a few days after birth. When a child presents this infirmity, it must be removed by compression. This is accomplished by a well-fitting bandage around the waist, containing a coin or similar body immediately over the navel, thus retaining the parts in their natural positions.

When they occur elsewhere, ruptures must be treated on the principles laid down, p. 232.

Cancer, although not specially an affection of childhood, is liable to occur at that time, and moreover, as a disease generally hereditary, may be appropriately spoken of in this connection. Cancers are of various kinds, and may occur in all parts of the body, and appear at any age. They have been described as hard, soft, open or bleeding, black, skin and bone cancers. They usually commence with a swelling and pain, followed by a breaking of the skin, and the formation of an external running sore. The pain is a very variable symptom. At the outset it is rarely very severe, and may not be continuous. At times, it is described to be of an aching or rheumatic character; at others, and more commonly, it is an occasional dart of pain through the part, as if a needle had suddenly been thrust into it. Later in the disease, the suffering becomes severe and constant, even excruciating, and can only be relieved by heavy doses of opiates.

What makes cancers so dangerous, is their tendency to recur after removal, and penetrate into and poison the tissues of all the organs of the body. Hence the only hope is to treat them early, before this has come to pass. Although generally hereditary, they are, in their outbreak, entirely local, and many instances are on record where early and complete removal has saved the patient from any recurrence of the cancerous growth.

One of the most common forms of cancer is epithelial, or skin

cancer. It is frequently seen on the lips and face. Its surface may be dry and warty, or watery and ulcerating. The edges are thick and a little elevated, and the discharge thin. It is usually slow in progress, lasting for years before causing such serious inconvenience as to lead the sufferer to a surgeon.

The treatment of a cancer, whether in a child or in an adult, is always and only by *removal*, and the earlier and more completely this is done, the greater safety has the patient for his life. Removal may be accomplished either by the knife or by caustics. Of the first of these methods, we shall only say that in the majority of cases it is the least painful, the most prompt, and the most efficacious. Whenever it is possible, the advice of a good surgeon should be sought early, and his intervention solicited.

But many people have a great dread of the knife. They prefer to suffer indefinite agonies from strolling quacks who advertise cancer salves, and it is of these we would speak. Whatever secrets such quacks pretend to have, they are all deceptions, and unscrupulous frauds. The caustics which are of use in cancer are all well known to the regular medical profession, and appear in the textbooks of surgery. The two principal ones are the chloride of zinc and arsenic. The former, made into a paste with two parts of flour and a small quantity of morphia, is as efficient a cancer salve as any, but it is dangerous and unjustifiable for persons ignorant of surgery to employ it. Of the internal remedies given to prevent the return of cancer, the best are arsenic, in small doses, long continued, and poke root. The latter vegetable preparation, given as a tea or extract, seems to have really valuable properties.

Swellings of the Glands of the Neck are often treated at home, without the aid of the physician or surgeon, until they suppurate, and are likely to leave scars. When such domestic management, however, is determined upon, the invalid should be allowed a nutritious animal diet, his bowels kept free by exercise on foot, whilst mild purgatives should be given, and the solution of iodide of iron, in doses of from ten to sixty drops, or the syrup of the iodide, in doses of a teaspoonful (a fluid drachm, which contains three grains of the iodide), should be internally administered, in a glass of water, twice a day. The tumors should be treated with

fomentations of salt or sea water, and friction employed twice daily, for half an hour each time. If suppuration cannot be arrested, under the improved state of health, then surgical advice must not be delayed until the abscess bursts spontaneously, for an ugly scar is likely to be the result; an event always to be regretted, especially in females.





PART IV.

SPECIAL RECEIPTS FOR CARE OF THE SICK.

THE DIVISIONS OF THIS PART.

In this, the last of the four parts into which we have divided our book, we have grouped nearly three hundred new and approved special receipts for the care of the sick. The first chapter of this part, Chapter Eleventh of the book, contains choice *dietetic* receipts for the sick-room; the second chapter of this part, Chapter Twelfth of the book, contains efficient *medical* receipts for the sick-room. Most of these receipts have been referred to by their numbers, in the treatment recommended for the various ailments discussed on the previous pages. By grouping them, as is here done, the various ways for accomplishing the same or a similar object are shown, and the reader can readily choose among them, in accordance with the purpose in view or the resources at hand. Thus, if a poultice is wanted, by turning to the section on poultices, in Chapter Twelfth, there will be exposed at one view, under the eye, a large number of receipts for making poultices, from which to select one appropriate to the needs of the case, or to the means of treatment at command.



CHAPTER X

DIETETIC RECEIPTS FOR THE SICK ROOM.

Importance of the subject—Rules for preparing and serving food for the sick—*Nutritious, cooling, and soothing drinks*: Lemonade—Effervescing lemonade—Barley water—Linseed tea—Arrowroot drink—Milk punch—Wine whey—Egg and sherry—Ice—Toast and water—Nutritious coffee—Milk and Isinglass—A soothing drink—Milk and cinnamon drink—Caudle—Apple water—Chocolate—Chocolate milk—The Invalid's tea—Rose tea—Sage tea—Oatmeal tea. *Gruels*: Water gruel—Milk gruel—Flour gruel—Rice gruel—Barley gruel. *Broths and soups*: Chicken broth—Mutton broth—Whole beef tea—Quickly-made beef tea—Vegetable soup—Bread soup—Spinach soup—Beef and hen broth. *Meats and Vegetables for Invalids*: Table, in order of digestibility, of some articles of animal food—Boiled pigeon or partridge—Bread sauce—Relish for fish—Minced fowl and egg—Fowl and rice—Stewed oysters—The invalid's cutlet—The invalid's mashed potato—Potato surprise. *Jellies for Invalids*: Isinglass jelly—Strengthening jelly—Mutton jelly—Bread jelly—Rice blanc-mange—Arrowroot blanc-mange—Sago jelly—Tapioca jelly—Panada—Calves' feet jelly—Currant jelly—Irish moss blanc-mange—Gelatine blanc-mange. *Puddings for Invalids*: Rice pudding—Bread pudding—Batter pudding—Milk for puddings or stewed fruit—Rice and apple—Vermicelli pudding.

In many, if not in all diseases, the choice and the preparation of the articles for the patient's table are of the utmost importance. Food is often the best medicine, and the cook may frequently be of more service than the druggist. But not uncommonly, the dishes served the invalid, like the drugs administered to him, fail of their effect because of their faulty preparation. Those who cook for the sick share the responsibility of treatment with the physician and pharmacist.

The character and amount of the food required by the sick vary, of course, with the nature and stage of the illness. Those sick of a fever need to be nourished by frequent supplies of nutri-

tious, easily digested food, in a fluid form, for solid food is, ordinarily, then rejected by the stomach, because of the loathing it excites. The weakest stomach, in such case, will take a small wineglassful of milk or beef-tea, every hour or two. If the milk clot in the stomach, and cheesy lumps be thrown up, this can be readily guarded against by adding a tablespoonful of lime water to each wineglassful of milk. As no regular meals can be taken, they should not be attempted. Small quantities of fluid food at short intervals, will furnish, during the twenty-four hours, a large amount of nourishment, which the irritable stomach, when thus approached, will absorb unconsciously. In *inflammatory rheumatism*, meat in any form, solid or fluid, is injurious; the patient must be put upon preparations of rice, potatoes, bread, arrowroot, gruel, vegetable or meatless soups, and jellies. In *dyspepsia* and *weak digestion*, the invalid requires frequent, small meals, at which he should drink very sparingly, and not at all at the beginning of the repast. Persons subject to *hysterics* need a generous meat diet, and must avoid all spirituous or fermented liquors. An excellent drink for them is a mixture of equal parts of soda water and milk. For *consumptives*, milk and suet are excellent articles of diet, but the best of all is cod-liver oil, which is the most readily digested fat of which we have any knowledge. In *disease of the heart*, a dry diet is most conducive to the comfort of the invalid, as liquids are absorbed very slowly by the stomach; the table should be generous, from which stimulants, however, are to be excluded, as they readily excite the heart's action.

We cannot better preface the varied receipts of this chapter, than by quoting the words of one whose eminence in the profession, and whose large and long experience, give them the weight of authority. Professor GROSS says: "The diet of the sick room has slain its thousands and tens of thousands. Broths, and slops, and jellies, and custards, and ptisans, are usually as disgusting as they are pernicious. Men worn out by disease and injury must have nutritious and concentrated food. The ordinary preparations for the sick are, in general, not only not nutritious, but insipid and flatulent. Animal soups are among the most efficient supporters of the exhausted system, and every medical man should know how to

give directions for their preparation. The life of a man is his food. Solid articles are, of course, withheld in acute diseases, in their earlier stages; but when the patient begins to convalesce, they are frequently borne with impunity, and greatly promote recovery. All animal soups should be made of lean meat; and their nutritious properties, as well as their flavor, may be much increased by the addition of some vegetable substance, as rice or barley. If the stomach is very weak, they may be diluted, or seasoned with pepper."

The *following rules* must be observed in preparing, cooking, and serving food for the sick:—

All the utensils employed should be *scrupulously clean*.

Never make a large quantity of one thing at a time.

Serve everything in as tempting and elegant a form as possible.

Put only a small quantity of an article on a dish at a time.

Keep milk and other delicacies on ice in warm weather.

Never leave food about a sick room.

Never offer beef tea or broth with the *smallest particle* of fat or grease on it, nor milk that is sour, nor meat or soup that is turned, nor an egg that is bad, nor vegetables that are underdone.

NUTRITIOUS, COOLING AND SOOTHING DRINKS.

1. Lemonade.

Take of

Sugar, two or three lumps.

Lemon, one.

Well rub the sugar on the rind of the lemon, squeeze out the juice, and add to it half a pint or a pint of *cold or iced water*; or, better still, one or two bottles of *soda water*.

2. Another Lemonade.

Pare the rind of three *lemons* as thin as possible, add a quart of *boiling water* and a quarter of an ounce of *isinglass*. Let them stand till next day, covered, then squeeze the juice of eight *lemons* upon half a pound of *lump sugar*; when the

sugar is dissolved, pour the lemon and water upon it, mix all well together, strain it, and it is ready for use.

3. Effervescing Lemonade.

Squeeze two large *lemons*, and add a pint of *spring water* to the juice, and then four or five lumps of *white sugar*. When required for use, pour half of it into a tumbler, and add half a teaspoonful of *baking soda*; stir and drink while foaming.

4. Barley Water.

Take of

Pearl barley, half a quarter of a pound.

Wash with cold water. Boil for five minutes in some fresh water, and then throw both waters away. Then pour on two quarts of *boiling water*, and boil it down to a quart. Flavor with thinly-cut *lemon rind*, and sugar to taste, but do not strain, unless at the sick person's special request.

This is an excellent receipt for making hard water more digestible.

5. Linseed Tea.

Take of

Whole linseed,
White sugar, each one ounce.
Liquorice root, half an ounce.
Lemon juice, four tablespoonfuls.

Pour on the materials two pints of *boiling water*, let them stand in a hot place four hours, and then strain off the liquor.

This makes an admirable soothing drink, which acts also upon the kidneys.

6. Arrowroot Drink.

Take of

Arrowroot, two teaspoonfuls.
Cold water, three tablespoonfuls.

Mix together and pour in about half a pint of *boiling water*. When well mixed, add, by degrees, half a pint of *cold water*, stirring all the time, so as to make it perfectly smooth. It should be about the consistence of cream; if too thick, a little more water may be added. Then pour in two wineglassfuls of *sherry*, or one of *brandy*, add *sugar* to taste, and give it to the invalid in a tumbler. A lump of *ice* may be added.

7. Milk-Punch.

Take of

Good brandy, two tablespoonfuls.
Cold, fresh milk, one tumblerful.
Mix with *sugar* and *nutmeg* to taste.

This is a useful drink when a stimulant is required in conjunction with a nutrient. It is a medicinal drink, and must not be given indiscriminately.

8. Wine Whey.

Take of

Fresh milk, one pint.
Boil it, and so soon as the boiling

point is reached, add as much good *Madeira* or *sherry* as will coagulate it. Strain, and sweeten or flavor for use.

This preparation, when nicely made, renders great service to the sick in proper cases.

9. Egg and Sherry.

Beat up, with a fork, an *egg* till it froths, add a lump of *sugar* and two tablespoonfuls of *water*. Mix well. Then pour in a wineglassful of *sherry*, and serve before it gets flat. Half the quantity of *brandy* may be used instead of *sherry*.

This is a valuable preparation in cases of great prostration, when stimulants and concentrated nutriment are required.

10. Ice.

It has been found by experiments on the gastric juice that low temperature does not exercise any deleterious influence upon it, though it is quite spoiled by heat. The supply of the juices necessary to digestion is arrested by feverishness of the system and in hot weather and in hot rooms. It cannot, therefore, but be beneficial to the stomach to reduce the unusual temperature to which it has been brought by the overheated blood. Hence, ice makes a most valuable addition to the tables of both sick and well. It is very injurious during the exhaustion following violent exercise, or the real cooling attending excessive perspiration. Lake ice is much superior to pond ice or snow.

11. Toast and Water.

Take of

Bread, one slice, from a stale loaf.
Boiling water, one quart.

Toast the slice of stale bread (a piece of hard crust is better than anything else for the purpose) to a nice brown on each side, but *do not allow it to burn or blacken*. Put it into a jug, pour the boiling water over it, cover it closely, and let it remain until cold. When strained it will be ready for use.

Toast and water should always be made a short time before it is re-

quired, to enable it to get cold; if drank in a tepid or lukewarm state, it is an exceedingly disagreeable beverage. If, as is sometimes the case, this drink is wanted in a hurry, put the toasted bread into a jug, and only just cover it with the boiling water; when this is cool, cold water may be added in the proportion required, and the toast and water strained. It will then be ready for use, and is more expeditiously prepared than by the above method.

12. Nutritious Coffee.

Dissolve a little *isinglass* in water, then put half an ounce of freshly-ground *coffee* into a saucepan, with one pint of *new milk*, which should be nearly boiling before the coffee is added. Boil both together for three minutes. Clear it by pouring some of it in a cup and dashing it back again. Add the *isinglass* and leave it to settle before the fire for a few minutes. Beat up an *egg* in a breakfast cup and pour the coffee into it; or, if preferred, drink without the egg.

13. Milk and Isinglass.

Take of

Isinglass, a pinch or two.

Milk, a tumblerful.

Mix well and boil. Serve with or without sugar, as preferred.

14. A Soothing Drink.

Take of

Isinglass, a pinch.

New milk, a tumblerful.

Bruised sweet almonds, half a dozen.

Sugar, three lumps.

Boil together.

15. Milk and Cinnamon Drink.

Boil, in a pint of *new milk*, sufficient *cinnamon* to flavor it pleasantly, and sweeten with *white sugar*.

This may be taken cold, with a teaspoonful of brandy, and is very good in cases of diarrhoea. Children may take it milk-warm, without the brandy.

16. Candle.

Beat up an *egg* to a froth, add a wineglassful of *sherry*, and half a pint of *gruel*; flavor with *lemon-peel* and *nutmeg*, and sweeten to taste.

17. Apple Water.

Slice two or three ripe *apples* without paring, into a pitcher, pour on a quart of *scalding water*, let it stand till cool, and sweeten with sugar.

18. Chocolate.

Put *milk* and *water* on to boil. Scrape the chocolate fine, one or two squares to a pint, as will best suit the stomach. When the mixture of milk and water boils, take it off the fire, throw the chocolate into it, mix it well, and serve it up with the froth. The sugar may be mixed with the scraped chocolate, or added afterwards. It should never be made before it is wanted, as heating it again injures the flavor, and causes a separation of the oil.

19. Chocolate Milk.

Dissolve an ounce of scraped *chocolate* in a pint of boiling *new milk*.

20. The Invalid's Tea.

Pour into a small china or earthen ware teapot a cup of quite boiling water; empty it out, and while the teapot is still hot and steaming, put in the tea. Add enough boiling water to wet the tea thoroughly, and set it close to the fire to steam, for five or six minutes. Then pour in the quantity of boiling water required, from the kettle, and it is ready for use.

21. Rose Tea.

Take of

Red rose-buds (the white heels being taken off), half an ounce.

White wine vinegar, three table-spoonfuls.

White sugar candy, one ounce.

Put them in two pints of boiling water, and let them stand near a fire for two hours, then strain.

Similar sour drinks may be made of apple jelly, guava jelly, syrup of gooseberries, etc. A variety is always agreeable.

22. Sage Tea.

Take of

Green sage leaves, plucked from the stalks and washed clean, half an ounce.

Sugar, one ounce.

Outer rind of lemon-peel, finely pared from the white, quarter of an ounce.

Put them in two pints of boiling water, let them stand near the fire half an hour, then strain.

When the sage is dried, it must be used in rather less quantity than above mentioned.

In the same manner, teas may be

made of rosemary, balm, southern wood, etc., and are convenient to prevent a thirsty invalid taking too much tea and coffee when not good for him.

23. Oatmeal Tea.

Take of

Oatmeal, a handful.

Barley water, a gallon.

Mix in a deep vessel. Let the oatmeal subside, which it does in half an hour, and pour off the tea. Hard water may be made digestible in this manner.

GRUELS.

Gruels should be thick, but not too thick; thin, but not too thin. Served in a tumbler they are more appetizing than when served in a basin or cup and saucer.

24. Water Gruel.

Take of

Fine oatmeal, a dessertspoonful.

Cold water, a tablespoonful.

Mix. Add a pint of *boiling water*, and boil it ten minutes, keeping it stirred.

25. Milk Gruel.

Take of

Fine oatmeal, four tablespoonfuls.

Milk, a quart.

Stir the oatmeal smoothly into the milk. Then stir it quickly into a quart of *boiling water*, and boil up a few minutes, till it is thickened. Sweeten with sugar.

26. Flour Gruel.

Take of

Flour, a tablespoonful.

Water, half a tumblerful.

Mix smoothly. Set on the fire, in a saucepan, half a tumblerful of *new milk*, sweeten it, and, when it boils, add the flour and water. Simmer and stir them together for a quarter of an hour.

27. Rice Gruel.

Take of

Fine rice, two tablespoonfuls.

Soak for half an hour in cold water. Pour off the water, and to the rice add a pint, or rather more, of *new milk*. Simmer gently till the rice is tender, then press through a sieve and mix with the milk. Heat over the fire, add a little more milk gradually, pour off to cool, and flavor with salt or sugar.

28. Barley Gruel

Take of

Pearl barley, two ounces.

Port wine, a tumblerful.

Rind of lemon, one.

Water, one quart and a pint.

Sugar, to taste.

After well washing the barley, boil it in a tumblerful of water for fifteen minutes. Then pour this water away. Put to the barley the quart of fresh boiling water, and let it boil until the liquid is reduced to half; then strain it off. Add the wine, sugar and lemon peel. Simmer for five minutes and put it away in a clean jug. It can be warmed from time to time, as required.

BROTHS AND SOUPS.

Broths, soups and beef tea should not be kept hot, but heated up as required. Neither should they ever be made in the sick room.

29. Chicken Broth.

Skin, and chop up small, a *small chicken*, or half a *large fowl*, and boil it, bones and all, with a blade of *mace* or sprig of *parsley*, and a crust of *bread*, in a quart of water, for an hour, skimming it from time to time. Strain through a coarse cullender.

Chicken broth, poured on thin pieces of bread laid on the bottom of the dish, makes a good sauce for boiled chicken or partridge, when the invalid is well enough to be allowed solid food.

30. Mutton Broth.

Take of

Lean loin of mutton, one pound, exclusive of bone.

Water, three pints.

Boil gently till very tender, throwing in a little salt and onion, according to taste. Pour out the broth into a basin, and, when it is cold, skim off all the fat. It can be warmed up as wanted.

If barley or rice is added, as is desirable during recovery from sickness, it must be boiled first, separately, till quite soft, and put in when the broth is heated for use.

31. Whole Beef Tea.

The *virtue* of beef tea is to contain all the contents and flavors of lean beef in a liquid form. Its *vices* are, to be sticky and strong, and to set in a hard jelly when cold.

Take half a pound of fresh-killed beef for every pint of tea required, and remove all fat, sinew, veins and bones. Cut up into pieces under half an inch square, and soak for twelve hours, in one-third of the water. Take it out and simmer for two hours in the remaining two-thirds of the water, the quantity lost by evaporation being replaced from time to time. Then pour the

boiling liquor on the cold liquor in which the meat was soaked. Dry the solid meat, pound it in a mortar, freed from all stringy parts, and mix with the rest.

When the beef tea is made daily, it is convenient to use one day's boiled meat for the next day's tea, as thus it has time to dry and is easier pounded.

A wholesome flavoring for beef tea is fresh *tomato*. A piece of green *celery stalk*, or a small *onion* and a few *cloves*, may also be boiled in it. Leeks give it a fusty flavor, and mushroom ketchup, sometimes introduced, is of doubtful composition.

While this is cooking, some more hastily prepared, in the following way, may be used.

32. Quickly-made Beef Tea.

Take one pound of raw beef, minced, for each pint of water. Stir up cold and let it stand for one hour. Then place the vessel in which they are mixed in a pan of water, and heat for another hour, over a slow fire, being careful not to boil, as then the preparation becomes gluey, and is not equally nutritious or digestible. Run the tea through a coarse strainer, and flavor at discretion.

33. Vegetable Soup.

Take of *butter*, half a pound. Put it in a deep stew-pan, place it on a gentle fire till it melts, shake it about, and let it stand till it has done making a noise. Have ready six medium-sized *onions*, peeled and cut small; throw them in and shake them about. Take a bunch of *celery*, cut in pieces about an inch long, a large handful of *spinach*, cut small, and a little bundle of *parsley*, chopped fine; sprinkle these into the pan, and shake them about for a quarter

of an hour; then sprinkle in a little *flour* and stir it up. Pour into the pan two quarts of *boiling water*, and add a handful of dry *bread-crust*, broken in pieces, a teaspoonful of *pepper*, three blades of *mace*, beaten fine; boil gently another half hour. Then beat up the yolks of two *eggs*, with a teaspoonful of *vinegar*, and stir them in, and the soup is ready.

The order in which the ingredients are added is very important.

34. Bread Soup.

Take the crust of a *stale roll*, cut it in pieces, and boil it well in a pint of *water*, with a piece of *butter* as big as a walnut, stirring and beating them till the bread is raised. Season with *celery* and salt.

35. Spinach Soup.

Pick all the stalks from one and a half pounds of *fresh spinach*; wash

it and clip it; put it in a three-quart stew-pan, with a quarter of a pound of *butter*; stir it over the fire for five minutes; add an ounce of *flour*, and stir again for three or four minutes, then stir in two quarts of *chicken broth* till it boils. Simmer it on a cool stove for half an hour, and add a small teaspoonful of cream. Serve with it some fried or baked bread.

Endive or *lettuce soup* may be prepared in the same way.

36. Beef and Hen Broth.

Take of

Lean beef, one pound.

Hen, one-half, boned.

Pound together in a mortar; add salt; put in a stew-pan with two and a half pints of *water*, and stir over the fire till boiling. Then add *carrots*, *onions*, *leeks*, and *celery*, cut fine. Boil for half an hour. Strain and serve.

MEATS AND VEGETABLES FOR INVALIDS.

Table, in Order of Digestibility, of Some Articles of Animal Food.

Sweet bread.

Boiled chicken.

Venison.

Lightly boiled eggs, new toasted cheese.

Roast fowl, turkey, partridge and pheasant.

Lamb, wild duck.

Oysters.

Boiled haddock, trout, perch.

Roast beef.

Boiled beef.

Rump steak.

Roast veal.

Boiled veal, rabbit.

Salmon, mackerel, herring.

Hard-boiled and fried eggs.

Wood pigeon, hare.

Tame pigeon, tame duck, geese.

Fried fish.

Roast and boiled pork.

Heart, liver, lights and kidneys of ox, swine and sheep.

Lobsters.

Smoked, dried, salt and pickled fish.

Crab.

Ripe old cheese.

37. Boiled Pigeon or Partridge.

Clean and season, inclose it in a puff paste, and boil. Serve in its own gravy, supplemented by the liver rubbed up with some stock, and do not forget the bread sauce.

38. Bread Sauce.

Take of

The crumbs of a French roll.

Water, a tumblerful.

Black pepper, six to eight corns.

Onion, a small piece.

Salt, to taste.

Boil till smooth; then add a piece of *butter* about as big as a walnut, and mix for use. It is good, hot, with hot birds, cold, with cold birds, and is an excellent food for the sick.

39. Relish for Fish.

Fish is made more digestible, and has its flavor brought out, by a few drops of lemon juice squeezed over it.

40. Minced Fowl and Egg.

Take of

Cold roast fowl, one.

Hard-boiled egg, one.

New milk or cream, three table-spoonfuls.

Butter, half an ounce.

Flour, one tablespoonful.

Salt, pepper, or cayenne, to taste.

Lemon juice, one teaspoonful.

Mince the fowl and remove all skin and bones. Put the bones, skin and trimmings into a stewpan, with one small *onion*, if agreeable to the patient, and nearly half a pint of water. Let this stir for an hour, then strain the liquor, chop the egg small, mince with the fowl, add salt and pepper, put in the other ingredients, let the whole just boil, and serve with thin slices of toasted bread.

41. Fowl and Rice.

Take of

Rice, one quarter of a pound

Broth, one pint.

Butter, one ounce and a half.

Minced fowl, egg and bread crumbs.

Put the rice into the broth, let it boil very gently for half an hour, then add the butter, and simmer it till quite dry and soft. When cold, make it into balls, hollow out the inside, and fill them with mince made according to the foregoing receipt, but a little stiffer. Cover with rice, dip the balls into egg, sprinkle with bread crumbs, and fry a nice brown. A little *cream* stirred into the rice before it cools improves it very much.

42. Stewed Oysters.

Take of

Oysters, half a pint.

Butter, half an ounce.

Cream, one-third of a pint.

Flour, cayenne and salt, to taste.

Scald the oysters in their own liquor. Take them out, beard them, and strain the liquor. Put the but-

ter into a stewpan, dredge in sufficient flour to dry it up, add the oyster liquor, and stir it over a sharp fire with a wooden spoon. When it boils, add the cream, oysters and seasoning, and simmer for one or two minutes, but *not longer*, or the oysters will harden. Serve on a hot dish, with thin slices of toasted bread. A quarter of a pint of oysters, the other ingredients being in proportion, makes a dish large enough for one person.

43. The Invalid's Cutlet.

Take of

Nice cutlet, from loin or neck of mutton, one.

Water, two teacupfuls.

Celery, one very small stick.

Pepper and salt, to taste.

Have the cutlet cut from a very nice loin or neck of mutton. Take off all the fat, put it into a stewpan, with the other ingredients; stew *very gently* indeed for nearly two hours, and skim off every particle of fat that may rise to the surface from time to time. The celery should be cut into thin slices before it is added to the meat, and care must be taken not to put in too much of this ingredient, or the dish will not be good. If the water is allowed to boil fast the cutlet will be hard. Time, two hours, very gentle stewing.

44. The Invalid's Mashed Potato.

Boil one pound of *potatoes* with their skins on, till they are tender or brittle. Peel them and rub them through a fine sieve. When cool, add a small teacupful of *fresh cream* and a little salt, beating up lightly until the whole is quite smooth. Warm up gently for use.

45. Potato Surprise.

Scoop out the inside of a sound potato, leaving the skin attached, on one side, to the hole, as a lid. Mince up fine the lean of a juicy mutton chop, with a little salt and pepper; put it in the potato, pin down the lid, and bake or roast. Before serving (in the skin) add a little hot gravy, if the mince seems too dry.

JELLIES FOR INVALIDS.

46. Isinglass Jelly.

Boil an ounce of *isinglass* and a dozen *cloves* (if liked), in a quart of water, down to a pint. Strain, hot, through a flannel bag, on two ounces of *sugar-candy*, and flavor.

47. Strengthening Jelly.

Simmer, in two quarts of soft water, one ounce of *pearl barley*, one ounce of *sago*, one ounce of *rice*, till reduced to one quart. Take a tea-cupful, in milk, morning, noon and night.

48. Mutton Jelly.

Take of

Shanks of mutton, six.
Lean beef, half a pound.
Water, three pints.
Crust of bread, toasted brown.
Pepper and salt, to taste.

Soak the shanks in water several hours, and scrub them well. Put the shanks, the beef and other ingredients into a saucepan, with the water, and let them simmer, say, gently, for five hours. Strain it, and, when cold, take off the fat. Warm up as much as is wanted at a time.

49. Bread Jelly.

Take the crumb of a loaf, break it up, pour boiling water over it, and leave it to soak for three hours. Then strain off the water containing all the noxious matters with which the bread may be adulterated, and add fresh. Place the mixture on the fire and let it boil till it is perfectly smooth. Take it off, and, after pouring out the water, flavor with anything agreeable. Put it into a mould, and turn it out when required for use.

50. Rice Blanc-mange.

Take of

Ground rice, one-quarter of a pound.
Loaf sugar, two ounces.
Butter, one ounce.
Milk, one quart.
Flavoring, of lemon peel.

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Mix the rice to a smooth batter, with a little milk, and put the remainder into a saucepan, with the butter, sugar and lemon peel. Bring the milk to boiling point, stir in the rice. Let it boil for ten minutes, or till it comes away from the saucepan. Grease a mould with salad oil, pour in the rice, let it get perfectly cold, and turn out.

51. Arrowroot Blanc-mange.

Take of

Arrowroot, two tablespoonfuls.
Milk, three-quarters of a pint.
Lemon and sugar, to taste.
Mix the arrowroot, with a little milk, to a smooth batter; put the rest of the milk on the fire and let it boil. Sweeten and flavor it, stirring all the time, till it thickens sufficiently to come from the saucepan. Put it into a mould till quite cold.

52. Sago Jelly.

Take of

Sago, two tablespoonfuls.
Water, one pint.
Boil gently, until it thickens, frequently stirring. Wine, sugar and water may be added, according to circumstances.

53. Tapioca Jelly.

Take of

Tapioca, two tablespoonfuls.
Water, one pint.
Boil it gently for an hour, or until it assumes a jelly-like appearance. Add sugar, wine and nutmeg, with lemon juice to suit the taste of the patient and the character of the ailment.

54. Panada.

Take of

Bread crumbs, one ounce.
Mace, one blade.
Water, one pint.
Boil, without stirring, till they mix and turn smooth. Then add a grate of *nutmeg*, a small piece of *butter*, *sugar* according to taste.

55. Calves'-Feet Jelly.

Take two *calves' feet* and add to them one gallon of *water*, and boil down to one quart. Strain, and, when cold, remove all fat. Then add the whites of six or eight *eggs*, well beaten (a pint of *wine*, if desirable), half a pound of *loaf sugar*, and the juice of four *lemons*, and mix well. Boil for a few minutes, constantly stirring. Then strain through a flannel bag.

56. Currant Jelly.

Boil together equal weights of white sugar and the juice of ripe currants, until the mixture solidifies by cooling, as shown by dropping a few drops on a cold plate. Remove the scum, and form the jelly in suitable vessels.

A tablespoonful of this jelly in a tumbler of cold water makes a de-

lightful acid drink, very grateful to many invalids.

57. Irish Moss Blanc-mange.

Take of

Irish moss, half an ounce.

Fresh milk, one pint and a half.

Boil these down to such a consistency as to retain a form when cold. Remove any sediment by filtering, and then add the requisite quantity of sugar, with lemon juice or peach water, to give an agreeable flavor.

The moss, before being used, must be well washed in cold water, to remove its saltish taste.

58. Gelatine Blanc-mange.

Boil one ounce of shred *gelatine* in a quart of *milk* for ten minutes, stirring constantly. Sweeten to the taste, flavor with peach water or essence of vanilla, and strain into a mould.

PUDDINGS FOR INVALIDS

59. Rice Pudding.

Boil two ounces of *rice* in a pint of *milk*, assiduously stirring till it thickens. Take it off and let it cool. Then well mix in two ounces of *butter*, a quarter of a *nutmeg*, grated, and *sugar* in moderation, according to taste. Pour it into a buttered dish and bake.

60. Bread Pudding.

Pour over a French roll half a pint of boiling *milk*, cover it close, and let it stand till it has soaked up the milk. Tie it up tightly in a cloth, and let it boil for a quarter of an hour. Turn it out on a plate and sprinkle a little white sugar over it. The addition of *burnt sugar* or *tincture of saffron*, will give it the established yellow color.

61. Batter Pudding.

Take of

Flour, three teaspoonfuls.

Milk, one pint.

Salt, a pinch.

Powdered ginger.

Nutmeg.

Tincture of saffron, each a teaspoonful.

Boil.

It will be observed in these three receipts eggs are avoided, as when baked, or even when boiled, so long as it is necessary to boil puddings, they are quite insoluble in a weak stomach.

62. Milk for Puddings or Stewed Fruit.

Boil a strip of *lemon* and two *cloves* in a pint of *milk*. Mix half a tea-

spoonful of *arrowroot* in a little cold milk, and add it to the boiling milk. Stir it till about the consistency of cream. Have ready the yolks of three *eggs*, beaten up well in a little milk. Take the hot milk off the fire, and as it cools, add the eggs and a tablespoonful of *orange flower water*, stirring it constantly till quite cool. Keep it in a very cool place till required for use.

63. Rice and Apple.

Boil about three tablespoonfuls of *rice* in a pint and a half of *new milk*, and simmer, stirring it from time to time, till the rice is quite tender. Have ready some apples, peeled, cored, and stewed to a pulp, and

sweetened with a very little loaf sugar. Put the rice round a plate, and the apple in the middle, and serve with a little of the above preparation of milk, if liked.

64. Vermicelli Pudding.

Take of

Vermicelli, two ounces.

Milk, three-quarters of a pint.

Cream, one-quarter of a pint.

Butter, one ounce and a half.

Eggs, two.

Sugar, one ounce and a half.

Boil the vermicelli in the milk till it is tender, then stir in the remaining ingredients (omitting the cream if that be not obtainable). Butter a small tart dish, line with puff paste, put in the pudding, and bake.

We conclude this chapter with the following judicious counsels from the pen of Prof. CHAMBERS, of London: "When a patient cannot be raised in bed without risk of exhaustion, a crockery or glass feeder is a convenience, but the same vessel, or even one of the same appearance, should not be used for food and for medicine. If the patient's mouth be foul, as in small-pox or putrid fever, it should be cleansed when he is fed. The administration of nutriment should then be so frequent that it is not allowed to become again foul. Food should, as a rule, be as near the natural temperature of the body as possible. But when the febrile heat is very high, or there is much nausea, some of it may be iced, with advantage. When life seems passing away under their eyes, the friends will often shrink from tormenting (as it seems to them) the sick man with food. Let them not despair; many a one has recovered after the doctor has taken his leave with a sad shake of the head, and without making a fresh appointment. And let them also be stimulated by this fact, namely, that the pains of death are aggravated, if not mainly caused, by the failure of nutrition. Even when apparently insensible, the dying suffer much increased distress from want of food, though they cannot express their sufferings."



CHAPTER XI

MEDICAL RECEIPTS FOR THE SICK ROOM.

BATHS AND DOUCHES. The hygienic importance of bathing—Rules for the use of the bath in health—Division of baths according to their warmth—The cold bath and directions for its employment—Warm and hot baths, when useful—*Medicated water baths*—Soap bath—Bran bath—Starch bath—Oil bath—Alkaline bath—Valerian bath—Gelatine bath—Bark bath—Iron bath—Mustard bath—Salt water bath—Liver of sulphur bath—Turpentine bath—*Vapor baths*: Simple vapor bath—Medicated vapor bath—Warm air bath—Turkish bath—Russian and Roman baths—Fumigations—Shower baths—Douche baths—Sand and mud baths—Hip baths or sitz baths—Foot baths—Shallow baths—Cold affusion—Wet-sheet packing—The dripping sheet—The wet compress—The sponge bath—**BLISTERS—CATHARTICS or PURGATIVES.** Remarks in regard to their use—Receipts for Effervescing cream of tartar—Magnesia and rhubarb—Rhubarb and epsom salts—May apple—Jalap and cream of tartar—Calcined magnesia—Seidlitz powders—Purgative mineral water—**CLYSTERS or INJECTIONS**: A purgative injection—An astringent injection—Nutritive injections—**COLD, MODE OF APPLYING—COUNTER-IRRITANTS—CUPPING—DISINFECTANTS—EMETICS—EYE WATERS—FOMENTATIONS, or STUPES and STEAMING—GARGLES—HEAT, MODE OF APPLYING—HERB and other MEDICINAL TEAS,** Receipts for—**INHALATIONS** Directions for Administering—**LEECHING—LINIMENTS—LOTIONS or WASHES—OINTMENTS or SALVES—PAIN REMOVERS, or ANODYNES—PLASTERS—POULTICES**: Bread and water poultice—Flaxseed meal poultice—Bran poultice—Stimulating poultices—Yeast poultice—Molasses poultice—Starch poultice—Charcoal poultice—Carrot poultice—Alum poultice—Mush poultice—Slippery elm poultice—Arrow-root poultice—Onion poultice—Mustard poultice—Bread and Milk Poultice—**TONICS—Receipts for the hygiene of the person**:—Tooth powders—Mouth washes—Washes for foul breath—Hair tonics—Ointments and washes for dandruff—Lip salves and lotions—Ointments and washes for chapped hands—Ointment for fetid feet—Lotions for the face—Washes for removing freckles—Ointment for sunburn.

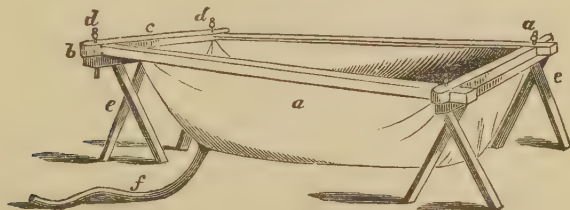
For convenience of reference we have arranged the various classes under which the receipts are grouped in alphabetical order, and shall, therefore, commence with

BATHS AND DOUCHES. "

Bathing, in its various forms, is an important item, not only in hygiene, or for the preservation of health, but in the treatment of many ailments, or, for the restoration of health. Baths may be divided into simple baths and medicated baths.

In health, and during the summer particularly, washing the whole body in a bath tub, or a running stream, several times a week, is of the utmost importance. For this purpose the water should not be too cold. Very cold spring water is, therefore, unfitted for bathing. If there be no bath in the house a wash tub does very well. Or, a bath may be readily constructed of the kind shown in the accompanying Figure. It consists of a hammock (*a*) of rubber cloth, extended upon two long poles (*b*), passed through a broad seam on each side of the hammock, and kept asunder by the cross pieces (*c*), which are attached to the cross pieces by thumb screws (*d*). By the flexible tube (*f*) the water may be drawn off. When the poles are fixed as in the figure, and the open end of the flexible tube twisted around one of the thumb screws, the bath is ready to receive the water. It may be supported upon two chairs, or upon the trestles (*ee*).

Fig. 103.

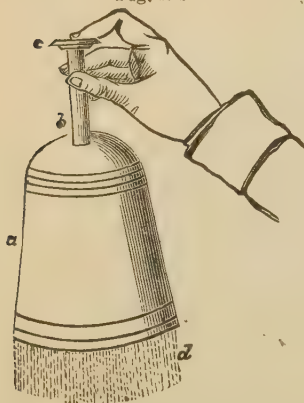


A Home-made Bath Tub.

A shower bath is an excellent thing on getting out of bed in the morning. A very good make-shift for a regularly constructed shower-bath apparatus exists in every house, in the shape of a colander. The use of this needs an assistant, however, to pour water through it. The accompanying figure shows a hollow tin vessel with a perforated bottom. To make a shower bath of it, sink it in a bucket of water, put the thumb at the orifice (*c*) of the

hollow tube (b) and raise the vessel from the bucket of water.

Fig. 104.



A Home-made Shower Bath.

with water in the morning on rising. This, if made a daily practice, with or without the addition of a little vinegar to the water, will be found to be, when cold water is employed, an excellent preventive of colds.

According to their temperature, baths are divided as follows:

The cold bath, from 33° to 60° of the ordinary (Fah.) thermometer.

The cool “ 60° to 75° “ “ “

The temperate “ 75° to 85° “ “ “

The tepid “ 85° to 92° “ “ “

The warm “ 92° to 98° “ “ “

The hot “ 98° to 112° “ “ “

The Cold Bath is mainly employed for the purpose of producing the powerful reaction which should always follow its use.

Rules for the Use of the Cold Bath.—1. The morning is the best time. 2. It should never be taken when the body is in a profuse sweat. 3. Never immediately after a full meal. 4. The head should be immersed first. 5. It should never be prolonged so as to cause shivering, blueness of the nails, etc. Five minutes is ordinarily a sufficient time. 6. If it cause disagreeable effects, the temperature, on another occasion, should be raised, and the time

The pressure of air keeps the water in so long as the thumb is kept on the orifice; on removing it, the water is thrown in a shower on the patient, over whose head it is held by an attendant. This is especially convenient for children.

After bathing, the skin should be rubbed with a hard dry towel, or with a flesh-brush, until it is in a glow.

When a bath cannot be conveniently taken, it is always possible to sponge the chest and arms

shortened. 7. So soon as the bath is over, the body must be quickly dried, and gentle exercise taken.

Cautions in Regard to the Use of the Cold Bath.—It should never be taken very cold by persons with disease of the heart, nor by those suffering from active inflammation of any of the organs of the body. In skin diseases it is usually inadmissible, particularly in those where a sudden driving in of the eruption may cause internal affections. Persons very much debilitated, or those who do not possess sufficient powers of reaction, must employ it with great caution, if at all. In infancy and old age it is of less benefit than in youth and middle life.

The cold bath is particularly useful where there is a general relaxation of the system and a deranged state of the nervous system resulting from disease or a too close application to business or study. It is a valuable tonic in all cases where no disease of the internal organs exists. Like all powerful agents, it must be resorted to with judgment, and its effects carefully watched.

Ailments in which the Cold Bath is Especially Beneficial.—In *asthma* a cold bath in the morning has been found to be of great service in many cases. Some prefer sponging the body in a mixture of salt and cold water (two or three tablespoonfuls of salt to the pint of water). The body should be well rubbed afterwards with coarse towels. In *persistent whooping cough* the cold bath or the shower bath has given good results in numerous instances. In *St. Vitus' dance* cold baths and shower baths are often excellent in connection with other treatment. *Hysterical ailments* of all kinds are greatly benefited by them.

The Warm Bath is useful in soothing the nervous system, in equalizing the temperature of the body, in modifying the action of the skin, in reducing the frequency and force of the heart's action, in relaxing the muscular system, in allaying restlessness, in relieving pain, and often in inducing quiet sleep. It should be employed with caution, if at all, by persons of very gross habits, and by those predisposed to apoplexy or to dropsy. On coming out of a warm bath, care should be taken to avoid exposure to a current of air and so checking the perspiration.

Ailments in which the Warm and Hot Baths are Useful.—In

the *fits*, or *convulsions* of children, the warm bath (98° of the thermometer) is a remedy of the utmost importance, and one which should never be overlooked. The trunk of the body should be kept in the water during ten or fifteen minutes. The hot bath is of service in mild forms of *dysentery*. In most *diseases of the skin* a daily employment of tepid or temperate baths is of much benefit.

Besides plain water baths, medicated baths are of frequent service in the treatment of many ailments. We shall, therefore, give a number of receipts for their preparation and use.

MEDICATED WATER BATHS.

65. Soap Bath.

Cut up two pounds of *white soap*, and dissolve in five or six quarts of warm water. Add this solution to the water of the bath.

Useful in softening the skin, and preparing it for the action of remedies in many skin affections.

66. Bran Bath.

Boil in water, half an ounce of *bran*, for a quarter of an hour. Add this to the bath.

This makes an excellent soothing bath.

67. Starch Bath.

Mix one pound and a half of *grated potatoes* with five or six quarts of water, and gently warm it. Then heat to the boiling point, the same quantity of water, and add slowly to the potato and water mixture in stirring. To be added to the bath.

This is also an admirable soothing bath.

68. Oil Bath.

Add a pound of *carbonate of soda* to the warm water of the bath. Dissolve and leave in repose for half an hour. Then add half a pint of *almond* or *cod-liver oil*, and mix.

The preliminary solution of car-

bonate of soda is indispensable in order to precipitate the salts of lime contained in ordinary water; without this precaution, no thorough mixing could be obtained.

This bath, frequently repeated, increases the flesh of the sick and convalescent.

69. Alkaline Bath.

Add a quarter of a pound of *carbonate of soda*, or of ordinary *baking-powder*, to the water of the bath.

This is useful in many skin affections.

70. Valerian Bath.

Mix one drachm of bruised *valerian root* with a tumblerful of boiling water, and add to the bath.

This is a useful bath in fits and nervous affections.

71. Gelatine Bath.

Steep a pound and a half of powdered *gelatine* in two quarts of cold water, during an hour; complete the solution by heating. Add to the bath.

A good soothing bath.

72. Bark Bath.

Boil, for half an hour, half a pound

of *cinchona bark* with a pint of water, and strain. Add to the water of the bath.

A useful tonic bath.

73. Iron Bath.

Add one ounce of the *sulphate of iron* (green vitriol) to the water of the bath.

This bath is recommended for scrofulous and rickety children.

74. Mustard Bath.

Add two ounces of *mustard* to the water of the bath.

This makes an effective stimulant bath. Often of service in the exhaustion of children; the child to be immersed, all but its head.

75. Salt-Water Bath.

Add half a pound of salt to the water of the bath, which may be cold or warm, according to the season.

Very useful in scrofula and general debility.

76. Liver of Sulphur Bath.

Add two ounces of *liver of sulphur* to the water of the bath.

Frequently of great benefit in St. Vitus' Dance. Also of much service in itch.

77. Turpentine Bath.

Take of

Baking soda, two pounds.

Turpentine, a tumblerful.

Oil of rosemary, a tablespoonful.

Add to the water of the bath.

This bath calms the pulse, softens the skin, and renders the respiration easy.

78. Simple Vapor Bath.

A vapor bath may readily be given by placing the unclothed patient on a cane-bottomed chair, with a large blanket fastened round his neck, reaching to the ground. Under the chair put a spirit lamp or a hot brick and a dish containing water. So soon as the water boils it surrounds the body with an atmosphere of vapor. Or, the patient may remain in bed, and the vapor

be introduced under the covers by means of a rubber tube fastened over the spout of an ordinary tea kettle in which water is kept boiling.

79. Medicated Vapor Bath.

The water to be evaporated may be readily medicated by throwing in dried herbs, such as rosemary, thyme, lavender flowers, or any others which it may be desirable to employ.

In many chest and throat affections watery vapor, either simple or medicated, may be diffused, with advantage, through the air of the sick room, by means of a small open boiler placed over the fire, a gas, or a spirit lamp.

80. Warm Air Bath.

This consists in exposing, for a short time, the naked body to the air of a common chamber which has been made very warm. It acts powerfully upon the skin, and induces perspiration very quickly.

81. Turkish Baths.

This bath is essentially a hot air bath, alternated with shampooing and cold douches. It can only, of course, be taken in large cities, where establishments for the purpose exist. The same remark applies to Russian and Roman baths.

These baths are dangerous when any heart disease exists, and should never be taken by the sick or enfeebled, except upon competent medical advice.

82. Fumigations.

These are vapors or gases obtained by heating various substances, for the purpose of masking unpleasant odors in the sick room, for modifying the air in it, or for producing an effect upon portions of the body with which they are brought in contact. They are frequently very improperly employed for concealing odors the cause of which should be removed by cleanliness and ventilation. They are generally made by burning *camphor*, *sugar*, *juniper berries* or *benzoin*, or by heating *vinegar* in the room.

83. Shower Bath.

The shower bath resembles, in its effects, the cold bath, but the shock it gives, with its thousand little blows, is more violent, particularly if the water be very cold, its quantity great, and its fall considerable. Its uses are the same as those of the cold bath.

84. Douche Bath.

This consists of a stream of water let fall or thrown, by means of a tube or otherwise, upon some portion of the body. Its power varies with the temperature of the water, the volume of the stream, and the force with which it is projected. A stream of an inch diameter, falling five or ten feet, is sufficient, borne for half a minute. It must be used with care.

In fainting, the cold douche, suddenly applied to the spine, sometimes suddenly restores consciousness. Stiff joints, after injuries or rheumatic attacks, are often benefited by cold douches of water upon them. A thin stream of cold water directed, for a few moments, from an elevation of two or three feet, upon the top of the head, is frequently useful in fits or convulsions of full-blooded children.

85. Sand and Mud Baths.

Warm sand baths are sometimes useful in the treatment of rheumatic joint affections. They are made by heaping up warm sand about the limb. At some mineral springs, and

at the seaside, patients affected with gout, rheumatism, or general dropsy, are treated by being buried to the neck in sand, mud, or gravel, saturated with the warm mineral water.

86. Hip Baths or Sitz Baths.

These consist simply of any convenient vessel, containing warm water, in which the patient can sit, so that the hips will be completely immersed. They are of use in gravel and kidney diseases.

87. Foot Baths.

These are very useful in drawing away the blood from the brain, lungs or other organs which are congested, or the seat of pain. They also, if their temperature be not above 100°, excite perspiration and persuade sleep. Salt or mustard may be added to the water, which should rise as high as the calves of the legs. The foot bath may be prolonged for fifteen or thirty minutes, a blanket being thrown over the limbs, so as to enclose, also, the foot tub.

88. Shallow Baths.

A shallow bath is taken by sitting the patient in a bath tub, five or six feet long, and pouring in sufficient water to rise eight or ten inches. At the same time the body and limbs should be well rubbed by an attendant, and water poured over the head. The water should be cold and the stay in it very short. It is useful in many cases of nervous irritability.

COLD AFFUSION.

Manner of applying cold affusion. The patient, being unclothed, is to have from three to five gallons of water, at 50° F. or 60° F., in the winter, and 60° or 70° in the summer, poured over him. Simple water, or vinegar and water, or salt and water may be used. The safest time for the application during fever is, when the exacerbation is at its height, or immediately after its declination has

begun. From six to nine o'clock in the evening is the hour usually chosen.

Cautions in the use of cold affusion. 1. It should never be employed when there is any sense of chilliness, although the thermometer in the armpit indicate a high degree of heat. 2. It should never be employed in the cold stage of fever, nor when the heat, measured by the thermometer in the armpit, is less than, or equal to, the natural heat (96° F.), even though the patient is not chilly. 3. It should never be employed when the body is in a profuse perspiration; nor, in fever complicated with any visceral inflammation. 4. The patient should always immerse his hands for a few moments in the water, before it is applied to any other part of the body; this prevents the shock from being too violent.

The earlier in the disease it is resorted to the better the effects of cold affusion; but in the more advanced stages it will be found to moderate the symptoms. It is useful in sleeplessness and in fevers.

90. Wet-Sheet Packing.

A sheet, dipped in cold or warm water, and well wrung out, is wrapped around the patient, and covered with three or more blankets. The patient should lie upon his side, thus wrapped up, for half an hour or an hour. Perspiration, ordinarily not very profuse, is produced, and a sedative effect upon the system obtained.

91. The Dripping Sheet.

A dripping wet sheet is suddenly thrown over the patient while standing, the skin briskly rubbed by the hands of an assistant, a dry sheet thrown on in the place of the wet one, the rubbing briskly kept up,

and the entire operation finished in five minutes.

92. The Wet Compress.

A piece of flannel or muslin, wrung out in cold water, is put around the seat of pain, and covered over by a piece of oiled silk or muslin.

93. The Sponge Bath.

Sponging the body once or twice a day in fevers, with cold water, alone or mixed with vinegar, is very grateful and refreshing to the hot and restless patient, and may be employed with safety, if care be taken not to expose the moist skin to a current of air.

BLISTERS.

A blister is best made by spreading the ointment of Spanish flies over an adhesive plaster, so as to leave a margin for attaching it to

the skin. It should be removed so soon as it causes decided pain, or so soon as the skin is well reddened, and the operation completed by means of a soft, soothing poultice. An extremely thin piece of muslin or paper, moistened with spirits of turpentine, inserted between the blister and the skin, will prevent that annoying irritation of the bladder which sometimes follow the use of a blister. In dressing a blister the bladders should be pierced with a large needle, and not cut, unless it is desired to keep up an open sore.

CATHARTICS OR PURGATIVES.

Cathartics or purgatives are medicines which loosen the bowels. Those which act violently are called drastics, those which act mildly, aperients or laxatives.

Remarks in regard to their use. The habitual employment of purgatives is a practice productive of great injury, causing dyspepsia and many other troubles of the stomach and bowels. Purgatives should not be given so that their operation will interfere with the regular hours of rest. They should not be taken immediately after a full meal. The action of every purgative is followed by a greater or less amount of costiveness. This is especially true of rhubarb, least so of castor oil. In cases of great debility cathartics should be avoided.

94. Effervescent Cream of Tartar.

Take of

Cream of tartar,

Carbonate of soda, each three drachms.

Water, a tumblerful.

Put the whole into a stone jug or bottle, and attach the cork firmly. To be taken in the morning, before eating.

95. Magnesia and Rhubarb.

Take of

Magnesia, one ounce.

Rhubarb, two drachms and a half.

Powdered ginger, two scruples.

Mix and divide into eight powders.

Take one or two in the evening, at bed-time, to obtain a laxative effect in the morning.

96. Rhubarb and Epsom Salts.

Take of

Powdered rhubarb, one drachm.

Epsom salts, one ounce.

Spirit of peppermint, two drops.

Water, a tumblerful.

One or two tablespoonfuls will produce a laxative effect.

97. May Apple, or Mandrake.

Take of

Powdered resin of May apple
(Podophyllin), one grain.

Powdered hyoscyamus leaves, eight
grains.

Powdered ginger, twelve grains.

Mix and divide into four powders.
One or two at bedtime in torpor of
the liver and bilious disorders. A
much better and safer pill than blue
mass or other mercurials, so fre-
quently employed indiscriminately
in these cases.

98. Jalap and Cream of Tartar.

Take of

Powdered jalap, one drachm.

Cream of tartar, six drachms.

Mix and divide into six powders.
Dose, one, in molasses.

99. Calcined Magnesia.

Take of

Husbands' or Ellis' magnesia,
thirty grains,

And dissolve it in a little milk or
water for one dose. This is an ex-

cellent cooling laxative. Its opera-
tion is promoted by the drinking of
lemonade.

100. Seidlitz Powders.

These are to be obtained of any
druggist. Two powders are given
together, a white and a blue one;
each of which is to be dissolved,
separately, in a tumbler one-third
full of water, and the two solutions
then mixed and drank while foam-
ing, in the morning, before break-
fast. This is a very popular, gentle
laxative, and well borne by the
stomach when other medicines of
the kind disagree.

101. Purgative Mineral Water.

Take from a bottle of the *solution
of the citrate of magnesia*, to be had
of any druggist, a teacupful every
two hours, until it operates. For a
child five years old, a wineglassful
is the proper dose. This prepara-
tion, which tastes like lemonade, is
one of the most agreeable of laxa-
tives.

CLYSTERS OR INJECTIONS.

Clysters or injections are solutions thrown into the lower bowel,
in order to act as purgatives, as astringents to check diarrhœa, or
stop bleeding, or as nutrients to nourish the patient in those ex-
hausted conditions when food cannot be given by the mouth.

102. A Purgative Injection.

Take of

Epsom salts, one ounce.

Sweet oil, two tablespoonfuls.

Starch water, one pint.

To be given when a purgative is
required.

Common salt and molasses also
make an excellent purgative injec-
tion; a tablespoonful of each in a
pint of water, with or without the
addition of a little soap.

103. An Astringent Injection.

Take of

Subnitrate of bismuth, twenty
grains.

Tincture of catechu, a teaspoonful.

Milk, a wineglassful.

For one injection, to be repeated
in twelve hours. Useful in checking
the purging of consumption, fevers,
etc.

104. Nutritive Injections.

Life can be prolonged, and even, in many cases, preserved, by the persistent use of nutritive injections when, in ailments like ulceration of the stomach, it is impossible to

give food by the mouth, as it is at once rejected by the stomach. Nutritive injections are made of strong beef tea, milk, raw eggs, cod-liver oil, and, even in extreme cases, of diluted brandy.

COLD, MODE OF APPLYING.

Cold has been employed in the treatment of disease from the earliest times. It is applied in various ways, by cold baths, by streams of cold water, by cold moist sponges and cloths, by bladders filled with ice, and by the evaporation of ether.

105. Cold Application.

Take of

Nitre, half an ounce.

Sal ammoniac, two drachms.

Vinegar, three tablespoonfuls.

Water, a pint.

Mix. This solution, applied, by means of sponges or cloths, to the head, and elsewhere, where intense cold is desired, produces a more powerful effect than cold water or pounded ice.

106. Cold without Moisture.

When it is desired to apply a freezing mixture to a small portion of the skin, it may be readily done by putting a mixture of ice and salt in a bladder, or a tumbler, or a

lamp glass covered with a piece of bladder.

107. Hydropathic Belts.

A hydropathic-belt consists of a bandage, five or six inches wide and long enough to pass two or three times around the body. It is dipped into cold water, carefully wrung out, wound around the trunk, and covered by a wider and longer dry band. About every hour, or as often as it becomes dry, it is to be changed. A bandage may be applied in the same manner upon various parts of the body, and particularly over the joints attacked by rheumatism. An eruption of the skin is usually produced by this application, which is frequently of service.

COUNTER-IRRITANTS.

Counter-irritants are applications intended to irritate the parts to which they are applied, and by exciting artificial congestion or inflammation, to modify disease existing in a distant part. How this curative power is exerted, it is difficult to say. Professor STILLÉ remarks: "It is a familiar fact that the body is an assemblage of organs, which are constantly exerting a reciprocal influence

upon one another, so that all are more or less involved in the derangements of each. Examples of sympathy between remote parts, and exerted through the organ of the mind, are innumerable. Emotions of pleasure or shame suffuse the face with blushes; while fear and the depressing passions blanch the cheeks, chill the extremities, and bedew the skin with a cold sweat. So, emotions of pity or tenderness make the tears flow; the odor or sight of agreeable food, or even the thought of it, makes the mouth water; while disgusting objects turn the stomach, and alarming ones suspend digestion or destroy the appetite. Obstinate constipation has been overcome by causing the patient to stand upon a wet marble pavement; consumption has often supervened upon the suppression of an issue or other habitual discharge; and still more frequently, apoplexy and other internal congestions have followed the same causes. The translation of gout and rheumatism to the brain, heart, stomach, etc., when suppressed in the extremities, is familiar to every practitioner. The coryzas, and sore throats, and pulmonary catarrhs, diarrhœas, and other affections which arise from merely getting the feet wet, are matters of daily experience, whose reality cannot be denied nor explained away. They are neither more nor less intelligible than the effects of counter-irritation, and both must be accepted because they are facts."

Shakspeare, whose wonderful acquaintance with the actions of the body has furnished us with more than one illustration, speaks, in "*Romeo and Juliet*," of the principle of counter-irritants, as follows:—

"Tut, man, one fire burns out another's burning,
One pain is lessened by another's anguish. . . .
Take thou some new infection to thy eye,
And the rank poison of the old will die."

Counter-irritation is affected by the application of various substances which redden or blister the skin

108. Croton-Oil Liniment.

Take of

Croton oil, thirty drops.

Sweet oil, two tablespoonfuls.

Mix. Produces, when rubbed on, redness and eruption of the skin. A useful application to the chest in beginning consumption.

109. Iodine Paint.

Take of

Tincture of iodine,

Alcohol, equal parts.

To be applied with a camel's-hair brush. Useful in many cases of persistent pains in the joints and limbs (*See, also, Blisters and Cups*).

CUPPING.

Physicians employ two sorts of cups, known as wet cups and dry cups. The former are for the purpose of extracting blood, the latter for counter-irritation by reddening the skin. A dry cup can be readily applied by any one. All that is necessary is a tumbler or wine-glass, and a little piece of cotton or paper, which is to be wet with spirits of wine, set on fire, thrown into the glass, which should then at once be firmly pressed down over the skin, when the fire will be quickly extinguished (without causing any pain), and the skin drawn up forcibly into the glass. The same object may be accomplished by holding the tumbler over a light until the air within is well heated, and then applying it quickly and closely to the skin.

Cupping is of benefit in rheumatic ailments, and in many affections of the chest and of the large joints.

DISINFECTANTS.

Disinfectants are substances which possess the power of destroying poisons capable of producing disease, and of removing disagreeable odors and gases by decomposing both them and the bodies from which they proceed.

The principal disinfectants are carbolic acid, coal tar, creosote, charcoal, chlorine, permanganate of potash, quicklime, sulphate of iron (copperas or green vitriol), sulphur, and fresh earth.

110. Carbolic Acid as a Disinfectant.

Take of

Impure carbolic acid, one ounce.

Water, one gallon.

Mix. Sprinkle over the floors of privies, about sinks, etc.

111. Charcoal as a Disinfectant.

Powder some wood charcoal and expose it, in open pans, in the place to be disinfected. It has the advantage over lime preparations, of being without odor.

112. Chlorine as a Disinfectant.

Chlorine water, to be obtained from any druggist, is a useful agent for correcting stench, and, diluted with water, for washing foul sores.

113. Permanganate of Potash.

Take of

Permanganate of potash, a teaspoonful.

Water, a quart.

Expose, in saucers, in the sick room. Useful for musty closets and foul cellars. It has no odor itself.

114 Green Vitriol.

Sulphate of iron, commonly called green vitriol, or copperas, in powder, alone, or mixed with lime, is an excellent disinfectant for privy-wells, slaughter-houses, ditches, etc.

115. Fresh Earth.

Fine dry earth, sprinkled over offensive matters, is an admirable disinfectant. A knowledge of this fact has led to the construction of *earth closets*. A box of dust from the road, and a tin cup, kept at the side of the closet or chamber vessel, so that the earth may be thrown immediately upon the dejection, will serve as a complete deodorizer, and answer the purpose almost as well as the

elaborately-constructed patent earth closets now in the market.

116. Sulphur.

Take of

Milk of sulphur, a teaspoonful.

Water, one pint.

Mix. Sprinkle over clothes to be disinfected, and iron with a hot flat-iron.

The fumes of burning sulphur may be employed for disinfecting out-houses, closets, carriages, etc.

117. To Quickly Remove a Bad Smell.

An unpleasant odor may be quickly removed from the sick room by burning in it dried lavender or cascarilla bark, with the window open.

EMETICS.

Emetics are medicines which cause vomiting. They are used to remove from the stomach poisons or crude indigestible matters, to dislodge things lodged in the throat or air-passages, and to excite the action of the skin and of the liver. They are not, except, of course, in cases of poisoning, to be given when there is disease of the heart, great irritability of the stomach, or much general debility. They are well borne by children, and of much service in many of the ailments of infancy and childhood. Their action is promoted by drinking plentifully of warm water, and by tickling the throat with a feather. When the vomiting produced is too violent or too long continued, it may be checked by a few drops of laudanum, or by applying a mustard plaster over the pit of the stomach.

118. Mustard Emetic.

Take a teaspoonful of mustard in a teacupful of warm water, every ten minutes, until vomiting is produced.

This is an efficient, quick, and safe emetic.

119. Alum Emetic.

Take a teaspoonful of powdered alum in a little honey, syrup, or molasses, every fifteen minutes, until vomiting is produced.

120. Common Salt Emetic.

Add one or two teaspoonfuls of salt to a teacupful of warm water. Take every ten or fifteen minutes, till vomiting is produced.

121. Salt and Mustard Emetic.

Mix a teaspoonful each of salt and mustard in a teacupful of warm water. Repeat every ten minutes, until free vomiting is brought on.

EYE-WASHES OR WATERS.

Eye-waters, or collyria, as they are called by physicians, are solutions applied directly to the eye or eyelids.

122. Alum Eye-wash.

Take of

Alum, one grain.

Pure water, two tablespoonfuls.

Mix. A useful wash, night and morning, for inflamed eyes.

123. Brandy Eye-wash.

A teaspoonful of brandy to two tablespoonfuls of water makes a serviceable eye-water when a stimulant is wanted.

124. Arnica Eye-wash.

Take of

Tincture of arnica, five drops.

Pure water, two tablespoonfuls.

Mix. Often of benefit in weak or sore eyes.

125. Tea Eye-wash.

Ordinary tea, when cold, makes a valuable eye-water in many cases.

FOMENTATIONS, OR STUPES AND STEAMING.

Fomentation is the application of warmth and moisture to the surface of the body by means of a flannel or soft cloth. Steaming consists in exposing a part to the vapors arising from a piece of flannel wrung out in boiling water; it is often employed in affections of the eyes.

126. An Ordinary Fomentation.

Immerse a piece of flannel in boiling water, remove it and put it in a wringer made by attaching stout toweling to two rods. The wringer is twisted around the flannel very strongly, till as much as possible of the water is pressed away. The wringer is useful, as the flannel is too hot, when first removed from the boiling water, to be grasped by the hand. When wrung as dry as possible, fomentations prepared in this way may be applied very hot, without fear of scalding or blistering the skin. The flannel, when applied to the part, should be covered with a piece of oiled silk or rubber cloth, and changed before it becomes cold. On the removal of the fomentation

the skin should be at once gently dried and covered with a piece of dry flannel.

If the precaution of covering the fomentation with oiled silk, muslin, or paper, or a rubber cloth, be neglected, the warm, comforting flannels will be converted, in a few minutes, into cold, clammy, wet ones, disagreeable and hurtful to the patient.

127. Turpentine Fomentation.

Steep a piece of lint or linen in oil of turpentine, place it over the part, and immediately apply over it flannel, heated as hot as it can be borne.

This is, frequently, more effectual than a mustard plaster.

128. Another Turpentine Fomentation.

Sprinkle the flannel, wrung out of hot water in the manner described, with a tablespoonful of turpentine.

This will act as a counter-irritant, rapidly reddening the skin and relieving pain in many cases.

129. Opium Fomentation.

Instead of turpentine, employ

laudanum, as directed in the preceding receipt. Used to relieve pain.

130. Mustard Fomentation.

Add a quarter of a pound of mustard to a pint of boiling water. Wring the flannel cloths out in this solution, in the manner above directed.

This fomentation quickly reddens the skin, and is frequently useful in allaying pain.

GARGLES.

Gargles, to be of benefit, must be frequently repeated, and their use persevered in.

131. Gargle of Brandy.

A mixture of equal parts of brandy and water makes a useful gargle in some cases of sore throat.

132. Gargle of Alum.

Take of

Alum, two teaspoonfuls.

Water, a tumblerful.

Mix. Used to remove offensive breath depending upon inflamed throat.

133. Gargle of Lime-Water.

Pour upon a quarter of a pound of fresh unslacked lime two quarts of hot water. After standing several hours carefully decant the clear

liquid, without shaking up the lime. This is a valuable gargle in diphtheria and croup.

134. Gargle of Chlorate of Potash.

Take of

Chlorate of potash, a teaspoonful.

Water, a tumblerful.

Mix. An excellent gargle for ordinary sore throat.

135. Gargle of Sage and Linseed.

Take of

Sage, two ounces.

Linseed, one ounce.

Boiling water, one pint.

Mix. To be used cold in the early stages of inflamed throat.

HEAT, MODE OF APPLYING.

Moist heat is applied by means of fomentations and poultices, which see. *Dry heat* may be applied in various ways. *Flannel*, highly heated in an oven, or before the fire, may be employed, but

it cools quickly. *Hot sand*, though heavy, and, therefore, for many purposes improper, retains its heat for a long time. It should be heated over the fire in an iron pan, and put in a warm linen bag of the proper shape for the object in view. *Chamomile flowers* are lighter than sand, but more quickly lose their warmth. They are to be heated, and placed in a linen bag, in the same manner as the sand. *Hot salt*, in a bag, is a ready method of applying heat in many cases, as, for instance, to the back of the neck, at night, to relieve headache. A thin piece of *flat-tile*, when it can be procured, can often be used with advantage. It is lighter than sand, and, when heated in an oven, and wrapped in a flannel, retains its warmth for a considerable time. A heated *dinner-plate*, or a hot *brick*, wrapped in flannel, may sometimes be employed, as may also *bottles of hot water*, well corked.

HERB, AND OTHER MEDICINAL TEAS.

Of any of the following teas the dose is a wineglassful every two or three hours.

136. Pipsissewa Tea.

Take of

Pipsissewa, bruised, one ounce.

Water, one pint.

Boil for fifteen minutes, strain, and add sufficient water, through the strainer, to make the tea measure a pint.

Useful to act upon the skin, produce perspiration, etc.

137. Uva Ursi (Bearberry) Tea.

Take of

Bearberry leaves, one ounce.

Water, one pint.

Boil for fifteen minutes, strain, and add sufficient water, through the strainer, to make the tea measure a pint.

Useful to act upon the kidneys.

138. Bittersweet Tea.

Take of

Bittersweet, bruised, one ounce.

Water, one pint.

Boil for fifteen minutes, strain, and add sufficient water, through the strainer, to make the tea measure a pint.

Useful to act upon the skin and kidneys.

139. Logwood Tea.

Take of

Logwood, rasped, one ounce.

Water, one quart.

Boil down to a pint, and strain.

Useful in diarrhoea and dysentery.

140. White Oak Bark Tea.

Take of

White oak, bruised, one ounce.

Water, one pint.

Boil for half an hour, strain, and add sufficient water through the strainer, to make the tea measure a pint.

Useful in persistent diarrhœa.

141. Yellow Cinchona Tea.

Take of

Yellow cinchona, bruised, one ounce.

Water, one pint.

Boil for fifteen minutes, strain, and add sufficient water to make the tea measure a pint.

142. Red Cinchona Tea.

Take of

Red Cinchona, bruised, one ounce.

Water, one pint.

Boil for fifteen minutes, strain, and add sufficient water, through the strainer, to make the tea measure a pint.

Useful as a tonic.

143. Dogwood Tea.

Take of

Dogwood, bruised, one ounce.

Water, one pint.

Boil for fifteen minutes, strain, and add sufficient water, through the strainer, to make the tea measure a pint.

Useful to give appetite and strength after sickness. Also, to break an attack of fever and ague.

144. Seneka Tea.

Take of

Seneka, bruised, one ounce.

Water, one pint.

Boil for fifteen minutes, strain, and add sufficient water through the strainer to make the tea measure a pint.

Useful as an expectorant.

145. Iceland Moss Tea

Take of

Iceland moss, half an ounce.

Water, one pint.

Boil for fifteen minutes, strain, with squeezing, and add sufficient water through the strainer to make the tea measure a pint.

Useful for coughs and colds.

146. Black Elder Tea.

Take of

Inner bark of black elder, one ounce.

Water, one quart.

Boil down to one pint. A wineglassful, or more, is a useful purgative in dropsy.

147. Juniper Tea.

Take of

Juniper berries, bruised, a tablespoonful.

Boiling water, one pint.

Pour the boiling water on the bruised berries, and, when cool, drink the whole in the course of the day.

Useful in dropsical affections.

148. Blackberry Root Tea.

Take of

Small blackberry roots, a large tablespoonful.

Water, one pint and a half.

Boil down to a pint. Instead of the small roots the bark of the larger roots may be employed. The dose is a tablespoonful, four or five times a day, in diarrhœa and dysentery.

149. Goose Grass Tea.

Take of

Goose grass, a handful.

Water, a quart.

Boil for twenty minutes. Dose, a tumblerful, thrice daily, in skin diseases and in gravel.

150. White Walnut Tea.

Take of

White walnut bark, one ounce.

Water, a quart.

Boil for half an hour. Dose, a wineglassful, as a mild purgative.

151. Burdock Tea.

Take of

Burdock root, freshly bruised, a handful.

Water, three pints.

Boil down to a quart. A pint to be taken, in divided doses, during the day.

Useful in persistent skin affections and scrofulous ailments. It acts decidedly upon the skin, slightly upon the bowels.

162. Calamus Tea.

Take of

Calamus root, one ounce.

Boiling water, one pint.

Pour the water on the calamus, and, when cool, give in doses of a wineglassful for the relief of colicky pains in the bowels. Especially useful for children.

153. Dandelion Tea.

Take of

Dried dandelion root, sliced and bruised, one ounce.

Water, one pint.

Boil for ten minutes in a covered vessel, then strain, and pour as much water over the contents of the strainer as will make the strained product measure a pint. Dose, a wineglassful several times a day in biliousness and dropsy.

154. Wormseed Tea.

Take of

Fresh wormseed leaves, one ounce.

Milk, one pint.

Boil with a little orange peel.

Dose, a wineglassful, morning and evening, for the expulsion of worms from the bowels.

155. Seneka and Liquorice Tea.

Take of

Seneka snakeroot,

Liquorice root, each a handful.

Water, two quarts.

Boil for half an hour and strain.

Dose, a wineglassful several times a day in obstinate coughs and colds.

156. Flaxseed Tea.

Take three tablespoonfuls of flaxseed, put in a small linen bag, suspend in a quart of water, and boil for twenty minutes. Flavor with a little lemon.

A soothing drink in ailments of the chest and bowels.

For a tea of flaxseed and liquorice see receipt No. 5, among the dietetic preparations on page 323.

157. Parsley Tea.

Take of

Parsley root, one ounce.

Boiling water, one pint.

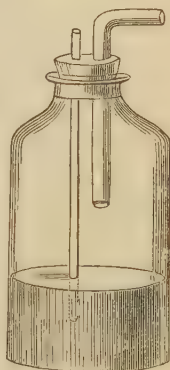
Pour the boiling water over the parsley root, and strain. A teacupful alone, or with a teaspoonful of sweet spirits of nitre, every four hours, is an excellent remedy in dropsy.

INHALATIONS.

By means of inhalation, remedies are made to enter, in the form of vapor, the air passages, and so come immediately in contact with the affected surfaces they are designed to treat. A funnel, turned over a bowl of hot water, medicated as required, makes a simple inhaler, the patient drawing the vapor through the neck of the funnel. An ordinary teapot may be readily made to serve the same purpose. An excellent inhaler may be easily made in any house, from a large and wide-mouthed bottle. Fit a cork into it accurately, bore two holes in the cork, through which pass two glass tubes, one straight, extending to the bottom nearly, the other

curved, extending only a slight distance below the cork, and not far enough to touch the liquid for inhalation, to be placed in the bottle. The accompanying illustration shows, at a glance, how to make such an inhaler. The end of the bent portion of the tube is the mouth-piece. The solution for inhalation is to be placed in the inhaler, filling it only about one-third full, and the inhaler then set in a vessel of hot water, to generate the vapor. When ready for use, take the extremity of the bent tube in the mouth, and draw the vapor into the lungs. Various substances are used for inhalation. The simplest of all is the steam of hot water, which is very beneficial in many throat and chest ailments. Another simple but effective inhalation in many cases, is obtained by pouring vinegar into boiling water.

Fig. 105.



An Inhaling Bottle.

158. Balsam of Tolu Inhalation.

Take of

Balsam of tolu, one ounce.

Boiling water, one pint.

Put in a bowl, cover with an inverted funnel, and inhale the vapor.

159. Cubebs and Carbolic Acid Inhalation.

Take of

Tincture of cubebs, a tablespoonful.

Fluid carbolic acid, twenty drops.

Mix. Add to half a tumblerful of water in the inhaling bottle, and use every three or four hours until tired. Very efficient in relieving the dry cough and pain of consumptive patients.

160. Inhalation of Tar.

Take of

Tar, one pint.

Solution of potassa (to be obtained of the druggist), two tablespoonfuls.

Mix these two ingredients, and boil for a few minutes in the open air, in order to disengage any impurities.

Then keep them simmering in the sick room, in an iron vessel, over a spirit lamp or other fire. In this way, not only the chamber, but the entire house is quickly pervaded by an agreeable vapor, which, although it may at first excite an inclination to cough, both in healthy and sick persons, very soon, in most cases, allays this symptom, and with it a great portion of a consumptive patient's distress.

161. Carbolic Acid Inhalation.

Take of

Fluid carbolic acid, ten drops.

Boiling water, a tumblerful.

Place in inhaling bottle, and use three or four times a day, in catarrh and offensive secretions from the air tubes.

162. Creosote Inhalation.

Take of

Creosote, thirty drops.

Boiling water, a tumblerful.

Put in inhaler, and use several times a day, in chronic catarrh.

LEECHING.

Leeching is a mode of removing blood from a part, and is much employed in the treatment of many affections.

Leeches are best kept in rain water, in a stone or glass jar, in a damp cellar or other cool place. It is better not to change the water oftener than once a week.

How to get the leeches to fix. Clear the skin carefully of all perspiration, and, if they do not readily take hold, moisten it with a little sweetened water or milk, or sweet beer. If a number are to be applied on one spot, put them in a tumbler, or small wine-glass, or pill-box, and turn it down on the part. When they are to be spread over a large surface, they have to be applied one by one, with the hand, over which a towel or handkerchief may be fastened. When applied, the leeches should be let alone, and allowed to drop off of their own accord. When detached, the part should be powdered with a little dry starch, and covered with a soft cloth.

If it be desired to continue the bleeding after the leeches come off, it can readily be done by sponging away the clotted blood and applying a warm bread and milk poultice, to be changed every half hour, or by covering the part with hot, moist flannels. To check the bleeding, a piece of lint wet with a mixture of vinegar and water, or a strong solution of alum in water, may be bound over the part. If this should fail, and the loss of blood become excessive, send to the drug store for a little of Monsell's solution of iron, and apply it on a piece of lint.

Children bear leeches badly. Leeches, if employed at all, should be used with great caution, only one or two at a time in infantile ailments. Adults will readily bear fifteen to twenty leeches at a time. A good foreign leech will take about a tablespoonful of blood; an American leech only about a teaspoonful.

Leeches must never be put to the eyelids, and rarely upon the face, as they may leave scars.

LINIMENTS.

Liniments are used for the double purpose of causing the removal of swellings and for reddening the skin, and so act as counter-irritants. They are applied by rubbing, either with the bare hand or with the hand covered by a piece of flannel, oiled silk or muslin, or a piece of bladder.

163. Camphor Liniment.

Take of

Camphor, one ounce

Olive oil, four ounces.

Rub up the camphor in the oil.

164. Hartshorne and Oil.

Take one part of hartshorne to two parts of oil; mix.

Useful for stiff neck and lumbago.

165. Opodeldoc.

Take of

Hard white soap, three ounces.

Camphor, one ounce.

Put them in a bottle, and add a tumblerful of spirits of wine, or brandy, or any other spirit, and as much water. Shake the bottle from day to day, till the soap and camphor are dissolved, when the liniment is ready for use.

A mixture of two tablespoonfuls of this liniment with a teaspoonful of laudanum, is very valuable to lull violent rheumatic pain.

166. Mustard Liniment

Is, for stimulating the surface, e of the best, as it is very manageable, and may be made to act either very slightly, or so severely as to take the skin off, according to the quantity used and the time the rubbing is kept up. The best guide as to the quantity required is the feelings of the person rubbed. At first, there is a pleasant sensation of heat, then a little pricking, and next a positive smarting; when this is produced, leave off, for if the rubbing be continued, it will soon flay the skin, and, as a consequence, prevents its being rubbed again for three or four days.

An ounce of *fresh flour of mustard* put into a bottle with a pint of *spirits of turpentine*, and shaken daily for two or three days, make this liniment. The mustard will settle to the bottom, and the clear fluid should be then poured off. Do not leave the mustard in and shake the bottle up before using; if so, it will give the skin a coating of mustard, and render the application unnecessarily severe. It is excellent for lumbago and chilblains.

Sometimes it is necessary to keep up irritation on the skin for a length of time without disturbing the constitution, which some irritants will do. The best application for this purpose is—

167. Croton Oil,

Of which ten or a dozen drops are to be rubbed in lightly with the fingers, guarded with a piece of oiled silk, for two or three nights. Generally, on the second day the surface is red and puffy, and on the third day a large crop of little blisters, about the size of hempseed, cover the skin. When these appear, the rubbing must be stopped. In the course of a few hours, the fluid in the blisters changes to matter, and these pustules begin to tingle and itch furiously. As soon as this happens, prick each with the point of a needle, and press out the matter with a handkerchief. In the course of a week the skin has been completely reproduced, and then the croton oil may be used again; but it does not blister quite so quickly as when first applied. The croton may be used for months, and is a most excellent mild irritant.

168. Lime Liniment.

Take of

Lime water,
Flaxseed oil, each a tumblerful
Mix them.

169. Chloroform Liniment.

Take of

Pure chloroform, a wineglassful.
Olive oil, two wineglassfuls.
Mix them.
A useful liniment in many painful
rheumatic and neuralgic affections.

170. Lead Ointment.

Take of

Solution of sugar of lead, two
ounces.
Olive oil, two wineglassfuls.
Mix them.

171. Turpentine Liniment.

Take of

Rosin cerate (to be had of the
druggist), three-quarters of a
pound.
Oil of turpentine, a tumblerful.
Add the oil to the cerate, pre-
viously melted, and mix them.

LOTIONS OR WASHES.

Washes are employed either for soothing and cooling inflamed parts, for stimulating sluggish sores to heal, or for drying and absorbing discharges.

In applying a *cooling* lotion or wash, a single piece of linen should be wet with it and laid on the part, which should not be wrapped up nor covered with the bed-clothes. So soon as the cloth dries it should be again dipped in the lotion, or wet by squeezing a spongeful of the wash over it.

A *stimulating* lotion is applied by dipping lint or rag into it, putting it on the sore and confining it by a bandage.

Lint, for use for this and so many other purposes, in dressing wounds and sores, is made by unraveling old linen, soft from use and washing. It may be prepared by scraping tightly-stretched linen with a sharp knife. A "patent lint" is sold at all the drug-stores, in rolls or sheets, which is more compact than loose lint, one side being fleecy and the other smooth. *Charpie* is an excellent sort of lint, much employed. It is made as follows: Cut a piece of lint into small pieces, a few inches square, and completely unravel it, thread by thread. The coarser kind may be made of old tablecloths. Old linen is much better than new for making charpie.

Drying lotions are applied, by means of lint or rag, to cracked skin, and to scalds, burnes, and sores which weep or discharge very freely.

172. Cold Water Wash

Is as good a wash as any, to produce evaporation, if care be taken to have the wet linen well exposed to the air; and it has the further advantage of being almost always at hand.

173. Spirit Wash.

Half a quarter of a pint of *spirits of wine*, or a quarter of a pint of *brandy*, or any other good spirit, added to a pint of water, make this wash.

174. Vinegar Wash

Is made by mixing one-fourth of *vinegar* to three-fourths of water.

To a pint of either of the former washes half a tablespoonful of *laudanum* may be added, if the pain suffered be very severe.

175. Lead Wash, or Goulard-Water or White Wash,

As it is often called, for common purposes, may be made by dissolving one drachm of *sugar of lead* in a pint of soft water. Some persons are very fond of using this wash, with the addition of spirits of wine, as an evaporant.

176. Lime Water Wash,

A very simple application; is one of the best, and very easily made. Take half a pound of *unstaked lime*, and three-quarters of a pint of water. Put the lime into an earthen pot, and pour a little of the water upon it, and as the lime slakes pour the water on by little and little, and stir up with a stick. The water must be added very slowly, otherwise the lime will fly about in all directions, and the great heat suddenly produced will crack or break the vessel which contains it. After three or four hours, when the slaked lime has sunk to the bottom, the clear fluid may be poured off, and put in a stoppled bottle, away from the light.

177. Oxide of Zinc Wash

Is made by putting four drachms of *oxide of zinc* into a pint of *lime water*, which does not, however, dissolve, but merely suspends it. It is, therefore, always necessary to shake the bottle well up, so that the linen may entangle the proper quantity of the oxide.

178. Sal Ammoniac Wash.

Take of

Sal ammoniac, one drachm.

Water, a tumblerful.

Mix, with or without the addition of a teaspoonful of laudanum,

Useful for painful, sluggish sores.

179. A Cooling Sal Ammoniac Wash.

Take of

Sal ammoniac, one drachm.

Nitre, two drachms.

Vinegar, two tablespoonfuls.

Water, a tumblerful.

Mix, apply by means of one layer only of linen, without any covering, to heated inflamed surfaces.

180. Another Sal Ammoniac Wash.

Take of

Sal ammoniac,

Nitre,

Common salt, each two teaspoonfuls.

Water, one pint.

Apply as above.

181. Chlorate of Potash Wash.

Take of

Chlorate of potash, a teaspoonful.

Water, a tumblerful.

A useful application to bad sores, and for chapped or cracked hands.

182. Borax Wash.

Take of

Borax, a teaspoonful.

Glycerine, a tablespoonful.

Water, a tumblerful.

Mix. An agreeable soothing lotion.

183. An Absorbent Wash.

Take of
Oxide of zinc, two drachms.
Water, a tumblerful.
Mix.

184. Arnica Lotion.

Take of
Tincture of arnica, a tablespoon-
ful.
Water, a tumblerful.
Mix. A useful lotion for sprains,
bruises and burns.

OINTMENTS OR SALVES.

Ointments or salves are usually prepared by rubbing of a medicine with lard. They should not be kept on hand too long, as they become rancid and unfit for use.

185. Sulphur Ointment.

Take of
Flowers of sulphur, half a pound.
Lard, one pound.
Oil of bergamot, two teaspoonfuls.
Mix up together. A curative
ointment for itch.

186. Carbonate of Ammonia Ointment.

Take of
Carbonate of ammonia, half a
drachm.
Lard, half an ounce.
Mix. A useful application to
sluggish, scrofulous sores.

187. Common Ointment.

Take of
Yellow wax, one ounce.
Olive oil, four ounces.
Lard, one ounce.
Mix. A soothing salve.

188. Tannin Ointment.

Take of
Tannin, one drachm.
Lard, one ounce.
Mix. An excellent astringent
salve.

189. Camphor Ointment.

Take of
Camphor, ten grains.
Spirits of wine, a few drops.
Lard, one ounce.
Mix. Useful in some skin dis-
eases.

190. Oxide of Zinc Ointment.

Take of
Oxide of zinc, one drachm.
Lard, two ounces.
Mix. Useful for chapped skin
and sores.

PAIN REMOVERS, OR ANODYNES.

The boldest doubter, he who, in rude health, is a most defiant and sarcastic skeptic of the power of medicine, is forced, by the

terror and victory of pain, to confess the beneficence of the substances given us by a merciful Creator for the subduing and the destroying of that pain.

“Pain is perfect misery, the worst
Of evils, and, excessive, overturns
All patience.”

The most powerful means for relieving pain, such as opium by the mouth, morphia injected under the skin, and chloroform by inhalation, are such potent agents for evil, as well as good, that their use can only be trusted to those trained to employ them. But there are other means which can be handled, with greater or less success, by non-medical persons. Many of them we have mentioned in speaking of painful ailments, but we group, in this place, a number of receipts for the relief of pain, which are of no little value, and which can be employed, with the exercise of ordinary care and judgment, without the risk of doing harm.

191. Quinine Powders.

Take of quinine, twenty grains, and divide it into eight powders. One of them twice a day is an excellent remedy in many forms of neuralgia (particularly in that occurring in persons living in districts where chills and fever prevail) and sick headache.

192. Sal Ammoniac.

Take of sal ammoniac, twenty grains, for one dose, in half a tumbler of water. Repeat the dose at the end of every hour, until four doses are taken, when, if no relief is had, the medicine is not appropriate to the case, and it is needless to continue. If it afford relief, as it does frequently, in an almost magical manner, in neuralgia of the face, and other parts, it should be taken three times a day, for a week or two, after the attack.

193. Camphor.

Half a teaspoonful of the spirits of camphor in water, is an excellent remedy for the pains of colic and diarrhoea.

Painful joints are also relieved by

the rubbing in over them of spirits of camphor, by itself or mixed with a little laudanum.

194. Chloral

Take of

Chloral, two drachms.

Sweetened water, half a tumblerful.

Take a tablespoonful for a dose. Useful to procure ease and sleep in many ailments, particularly rheumatic pains and pains arising from burns.

195. Coffee.

Squeeze the juice of a lemon in a small cup of strong black coffee. This will often afford immediate relief in neuralgic headache.

Tea ordinarily increases neuralgic pain, and ought not to be used by persons affected with it.

196. Iodide of Potassium.

Take of

Iodide of potassium, one drachm.

Sweetened water, half a tumblerful.

Mix. Take a tablespoonful three times a day, in pains of the joints and bones that are worse at night.

197. External Applications.

Warm and hot baths are admirable remedies for pain. So, also, are *poultices* and *hot fomentations*, for which receipts are given under their heads in this chapter.

198. Hygienic Means.

Whatever improves the general health, saves and relieves pain. *Pure air* is, therefore, an anodyne.

"Ye, who amid this feverish world
would wear

A body free from pain, of cares a
mind,

Fly the rank city, shun its turbid
air."

Light rooms; warm clothing; regulated gymnastic exercise, such as described in the first chapter of this book, page 37; out-door recreation; proper amount of sleep; the avoidance of fatigue of body and mind; and of intemperance in alcohol and tobacco, and in everything else which impairs the nervous force; together with change of air and climate as restoratives, are all means by which pain may be escaped or its edge blunted.

Many forms of neuralgia are relieved by change of air, as well as various constitutional disorders causing pain. Sea air is particularly useful in numerous instances

POULTICES.

"Poultices are blessings or curses, as they are well or ill made," was a saying of the celebrated Dr. Abernethy. They should be spread thickly, as a general rule, otherwise they dry quickly, and irritate the part they are intended to soothe.

All poultices should be covered over by a piece of oiled silk, muslin, or paper, to retain the heat and moisture.

199. Bread and Water Poultice.

Scald out a basin, for, in order to make a good poultice perfectly, boiling water is necessary; then, having put in some hot water, throw in coarsely-crumbled bread, and cover it with a plate. When the bread has soaked up as much water as it will imbibe, drain off the remaining water, and there will be left a light pulp. Spread it, a third of an inch thick, on folded linen, and apply it when of the temperature of a warm bath.

Or, carefully pare away the hard, brown crust from a slice around the loaf of stale bread, dip it into hot water, lift it out at once, and apply immediately, if not too hot.

200. Flaxseed Meal Poultice.

The celebrated Dr. Abernethy gave the following directions for making this poultice:—

"Get some linseed powder, not the common stuff full of grit and sand. Scald out a basin; pour in some perfectly boiling water; throw in the powder, stir it round with a stick, till well incorporated; add a little more water and a little more meal; stir again, and when it is about two-thirds the consistence you wish it to be, beat it up with the blade of a knife till all the lumps are removed. If properly made, it is so well worked together, that you might throw it up to the ceiling, and it would come down again without

falling to pieces; it is, in fact, like a pan-cake. Then take it out, lay it on a piece of soft linen, spread it the fourth of an inch thick, and as wide as will cover the whole inflamed part; put a bit of hog's lard in the centre of it, and when it begins to melt, draw the edge of the knife lightly over and grease the surface of the poultice. When made in this way, oh! it is beautifully smooth; it is delightfully soft; it is warm and comfortable to the feelings of the patient."

201. The Bran Poultice

Is a sort of "entire," or half-and-half, partly poultice, partly fomentation, and is a very good application for setting up and keeping up perspiration on a part; but it requires to be often changed, for it very quickly becomes sour, and then has not the most agreeable smell. It merely consists of bran moistened, but not made wet, with hot water; and enough of it should be put into a flannel bag, sufficiently large to cover the part, to fill it about one-third; if more bran be put in the bag becomes unpleasantly heavy. It must then be held before the fire, and the bran turned about again and again, till it is thoroughly heated. Thus warmed, it must be quickly applied, and the bran should be gently spread, so as to cover the whole extent of the bag.

202. Stimulating Poultices

Are required for two purposes: either to hasten the separation of a dead part or slough, or, as it is called in common language, "a set-fast," or "core;" or to irritate the skin where it is inconvenient to apply a blister, or for the purpose of rendering the operation of a blister more speedy. For the first of these objects, yeast, stale beer-grounds, or molasses, is used for the second, mustard.

203. Yeast Poultice

Is made by mixing a pound of flour, or linseed-meal, or oat-meal, with half a pint of yeast or beer-grounds.

The mixture is to be heated in a pot, carefully stirred, to prevent burning, and, when sufficiently warm, must be spread on linen, like any other poultice.

204. Molasses Poultice

May be made according to the same proportions, heated and applied in the same way.

205. Starch Poultice.

Add a little cold water to the starch, and blend the two into a pap; then add sufficient boiling water to make a poultice of the required consistence, which must be spread on linen.

Useful in skin eruptions attended with much heat and pain, and, in general, when a soothing application is required.

206. Charcoal Poultice.

The charcoal may either be mixed with the ingredients of the poultice or sprinkled over the part and covered with a simple poultice, or the following receipt may be used:

Take of

Wood charcoal, in powder, a table-spoonful.

Bread, three or four slices.

Flaxseed-meal, three tablespoonfuls.

Boiling water, one tumblerful.

Mix. A useful application to offensive wounds and sores.

207. Carrot Poultice.

Boil the carrots till they become quite soft, mash them with a fork, and spread the pulp on linen, in the ordinary way.

A *turnip* poultice may be made in the same manner.

208. Alum Poultice.

Composed of the whites of two eggs and a teaspoonful of powdered alum. An excellent astringent.

209. Mush Poultice.

Stir Indian-meal, in small quantities, into water kept boiling in a pan, until the whole has acquired the proper degree of thickness.

210. Slippery Elm Poultice.

Made by moistening, with hot water, the inner bark of slippery elm, ground into a fine powder.

211. Arrowroot Poultice.

Add enough boiling water to arrowroot, previously mixed with cold water into a smooth paste, as will make it of the required thickness for spreading. A pleasant soothing poultice.

212. Onion Poultice.

Mash some partially roasted onions, and spread them upon folds of muslin. Applied to the chest, useful in the croup and catarrh of children; applied to the arms and legs, useful to prevent the fits of children.

213. Mustard Poultice.

For a mustard poultice, a sufficient quantity of powdered mustard should be taken to make a thin paste the required size. This should be mixed with boiling water, with a small quantity of vinegar added, if a very strong poultice is required, and spread on brown paper, with a piece of thin muslin over it.

A mustard poultice should generally be kept on from ten to twenty minutes, but some skins will bear it much longer than others. If the skin is very irritable afterwards, a little flour should be sprinkled over it. This will remove the burning sensation.

214. Bread and Milk Poultice.

Upon the crumbs of stale wheat bread, in a basin, pour boiling milk, stirring with the back of a spoon until the mixture has the thickness of mush. Spread and apply.

TONICS.

Tonic medicines are those which give strength to the system. They act slowly, and must be persevered in to obtain their full effects. Excellent results are frequently obtained by changing from one to another, when the first tried fails, or has ceased to do good.

215. Quinine in Powder.

Take of

Quinine, two scruples.

Divide into twenty powders. Take one three times a day, well covered in a little scraped apple. The apple disguises, completely, the bitter taste of the medicine.

This is an admirable tonic in nervous and other forms of debility, and in loss of appetite.

216. Quinine in Solution

Take of

Quinine, eight grains.

Syrup of gum arabic,

Ammonia water, each two table-spoonfuls.

Mix. As the quinine is not dissolved, but merely suspended in this solution, the bottle must be well shaken before giving a dose.

This is a useful preparation for

children, the proper dose for them being a teaspoonful, containing one-half a grain of quinine.

The gum masks, somewhat, the bitter taste of the medicine. Used for the same purposes as the preceding receipt.

217. Iron Powder.

Take of

Reduced iron, two scruples.

White sugar, in powder, two teaspoonfuls.

Mix, and divide into twenty powders. Dose, one powder, in molasses, syrup, or preserves, three times a day.

Reduced iron, which is a tasteless powder of an iron gray color, may be obtained from any druggist, and is one of the very best preparations of iron which can be taken by pale, thin-blooded people.

In using this, as well as the other preparations of iron, it is necessary to persevere for several months, to reap the fullest results.

218. Potassio-tartrate of Iron.

Take of

Potassio-tartrate of iron, one drachm.

Divide into twelve powders. Take one, in syrup or preserves, three times a day. An admirable tonic in dyspepsia, and loss of appetite, and debility. It has the advantage over many other preparations of iron, of not constipating the bowels, and of being rapidly digested.

Half an ounce of the potassio-tartrate of iron, added to a pint of sherry after solution, may be used instead of the powders, in tablespoonful doses.

The best time for taking this, and other preparations of iron, is with the meals, and not on an empty stomach. The juice in the stomach during digestion readily dissolves the iron, which, if taken while fasting, may cause pain and uneasiness.

219. Columbo and Ginger.

Take of

Bruised columbo, one ounce.

Bruised ginger, a quarter of an ounce.

Boiling water, one pint.

Mix and strain.

A wineglassful four or five times a day is a useful tonic in persistent diarrhoea.

RECEIPTS FOR THE HYGIENE OF THE PERSON.

Under this head we group a variety of useful receipts for the care of the hair, the skin, and the teeth. They are all harmless, as well as efficient, which, too frequently, is not the case with the many perilous compounds widely advertised, and sold as tooth powders, hair tonics, mouth and skin washes, and lip salves, under high-sounding names. Any druggist can put them up, and at a less price than is asked for the dangerous secret preparations they are designed to replace.

TOOTH POWDERS.

220.

Take of
Powdered camphor,
Powdered orris root, each two drachms.
Precipitated chalk, half an ounce.
Mix thoroughly. The chalk employed should be the "precipitated," and not the "prepared" chalk of the druggist.

Another excellent tooth powder is the following:—

221.

Take of
Freshly-prepared willow charcoal,
or,
Freshly-prepared areca-nut charcoal, one ounce.
Keep in a tightly-corked bottle.
Another powder, especially valuable when the teeth have been stained by taking iron:—

222.

Take of
Tannic acid, quarter of an ounce.
Sugar of milk, two ounces.
Red lake, half a drachm.
Oil of teaberry, or cloves, a few drops.
Mix with care.
A tooth paste, of use occasionally, is the following:—

Improper tooth powders are powdered pumice stone, which rapidly wears off the enamel, the protecting cover of the teeth (pumice stone is a frequent ingredient in secret tooth powders), cigar ashes, cream of tartar, or any other acid.

223.

Take of
Finely-powdered white, dried Castile soap,
Sepia, in powder, each a quarter of an ounce.
Mix, to the thickness of a paste, with fresh, clarified honey, and perfume with a few drops of teaberry.
As the "sepia" wears the enamel if often used, this powder is for occasional employment only.

The following tooth powder is of benefit when the gums are sore and spongy:—

224.

Take of
Powdered myrrh, quarter of an ounce.
Powdered borax, half an ounce.
Precipitated chalk, one ounce.
Powdered orris root, quarter of an ounce.
Mix.

The following tooth powder is excellent when the saliva is acrid and the breath sour:—

225.

Take of
Bicarbo ate of soda,
Powdered talc, each half an ounce.
Oil of anise, a few drops.

MOUTH WASHES.

These are useful when the gums are tender, or the breath offensive, or the teeth rapidly decaying.

226. Camphor Mouth Wash.

Take of
Spirits of camphor, half a teaspoonful.
Milk-warm water, a wineglassful.
To be used several times a day, and at bedtime.

227. Honey Mouth Wash.

Take of
Honey of rose, half a teaspoonful.
Milk-warm water, a wineglassful.
Mix, and use as above directed.

228. Myrrh and Cinchona Mouth Wash.

Take of

Tincture of myrrh,
Compound tincture of cinchona,
each half a teaspoonful.
Milk-warm water, a wineglassful.
Mix, and use as above directed.

229. Brandy Mouth Wash.

Take of

Pure French brandy, a teaspoon-
ful.
Milk-warm water, a wineglassful.
Mix, and use as above directed.

230. Permanganate of Potash Mouth Wash.

Take of

Permanganate of potash, four
grains.
Rose water, four fluid ounces.
Oil of peppermint, a few drops.

This is an excellent mouth wash
for foul breath, caused by bad teeth
or disordered secretions of the
mouth. It slightly stains the teeth,
but does them no injury; on the
contrary, being an excellent pre-
servative, and a valuable remedy for
preventing and curing toothache.

The discoloration may be easily
taken off by a tooth brush or sponge.

231. Chlorate of Potash Mouth Wash.

Take of

Chlorate of potash, two or three
teaspoonfuls.
Water a tumblerful.
Oil of teaberry, a few drops.
To be used several times a day.

232.

When offensive breath comes from
a foul stomach, twenty grains of
bisulphite of soda, in half a tumbler
of water, with a little essence of
peppermint, twice a day, is an ex-
cellent remedy. Or, three grains of
chlorinated lime, known also as *chlo-
ride of lime*, in a wineglassful of
water, several times a day, may be
taken. *Charcoal*, internally, is also
of use in such cases.

233.

For masking the scent of onions,
and other disagreeable acquired
odors, freshly-roasted *coffee grains*
are useful, or a small portion of
Canada snakeroot, chewed.

HAIR TONICS

234.

Take of

Pure glycerine, three drachms.
Lime water, four ounces.

To be applied to the scalp, night
and morning, with a soft tooth
brush, after the head has been
cleaned by gently washing with
Castile or sulphur soap and warm
water.

This is an excellent treatment to
commence with for slight scurfiness
of the head, and falling of the hair,
and baldness.

After several weeks' use the pre-
paration may be changed to the fol-
lowing:

235.

Take of

Tincture of cantharides, half an
ounce.

Pure glycerine, three drachms.

Lime water, four ounces.

To be rubbed into the skin, briskly,
twice a day.

The following hair tonic is also
often of service for scurf and com-
mencing baldness:—

236.

Take of

Rock salt, as much as will dissolve.

Pure glycerine, a tablespoonful.

Flour of sulphur, a teaspoonful.

Old whiskey, a tumblerful.

Mix.

237. Bark Hair Tonic

Take of
 Red cinchona tea (see receipt No. 142), a tumblerful.
 Brandy, a wineglassful.
 Pure glycerine, a tablespoonful.
 Mix. Apply, night and morning, for sourf and falling of the hair.

238. Ammonia Hair Tonic.

Take of
 Stronger water of ammonia,
 Castor oil, each one ounce.
 Old brandy, two ounces.
 Rose water, six ounces.
 Mix. This mixture must not be employed oftener than every other day.

239. Ointment for Dandruff.

Take of
 Powdered borax, twenty grains.
 Lead water (diluted solution of subacetate of lead), two drachms.
 Fresh lard, one ounce.
 Attar of roses, a few drops.
 Mix. To be rubbed on the scaly patches on the scalp every morning, after the skin has been cleaned by soap and water.
 Or, the same ingredients may be used in a wash as follows:—

240. Wash for Dandruff.

Take of
 Powdered borax, twenty grains.
 Lead water, two drachms.
 Rain water, half a tumblerful.
 Pure glycerine, a tablespoonful.
 Mix. Use once or twice a day.

LIP SALVES, LOTIONS, ETC.

241. Lip Salve.

Take of
 Oxide of zinc, thirty grains.
 Spermaceti ointment, half an ounce.
 Attar of roses, one drop.
 Mix. To be applied, night and morning, for irritated and cracked lips, after bathing the parts with the following:—

242. Lotion for the Lips.

Take of
 Alum, a teaspoonful.
 Water, a tumblerful.
 Instead of alum, borax may be often used, with advantage.

243. Solution for Fever-Blisters.

Take of
 Carbolic acid, ten drops.
 Pure glycerine, a teaspoonful.
 Attar of roses, two drops.
 Cautiously touch the sore part with this preparation several times a day. Or, wet the little blisters with a solution of permanganate of potash (one grain to a table-spoonful of water) and dust with fine starch or French chalk.

244. Lotions for the Hands.

Add a tablespoonful of pure glycerine to a pint of water. This, well rubbed in, but not wiped off, will soften and whiten the hands, and protect them from the air.
 Another simple, but effectual, wash for this purpose is the following:—

245.

Take of
 Horse-chestnuts, a sufficient quantity.
 Peel them, and dry thoroughly in the oven. Then pound or grind into a fine powder, and add a tablespoonful of the powder to the water in the hand-basin each time the hands are rinsed.

For chapped hands nothing is better than pure glycerine, well rubbed in, several times a day. A little tincture of benzoin may be added, with benefit, to the glycerine.

246.

Take of
 Sal ammoniac, a teaspoonful.
 Aromatic vinegar, a tablespoonful.
 Warm soft water, a quart.

This solution, used for soaking the hands, during ten or fifteen minutes, morning and evening, is recommended for improving the skin, preventing redness, and destroying warts.

It is also of service for clammy moisture of the hands.

Clammy hands are also benefited by adding half a teaspoonful of alum to the wash-water.

247. Ointment for Fetid Feet.

Take of

Crystallized carbolic acid, five grains.

Ointment of oxide of zinc, one ounce.

Mix. Apply, morning and evening, after washing the feet in cold water, with which a few teaspoonfuls of alum have been mixed. In such cases, the wearing of a thin sole of felt inside the shoe, which should be removed several times a week, wet in a solution of permanganate of potash (twenty grains to the ounce of water), dried, and reinserted, is of benefit. The stockings should be of wool, and changed once a day, and the same pair of shoes should not be worn on two consecutive days.

WASHES FOR THE FACE.

248.

Take of

Powdered borax, half an ounce.

Pure glycerine, one ounce.

Camphor water, one quart.

Mix. Wet the face with this, morning and evening, allow it to remain for several minutes, and wash in rain water. An excellent lotion to prevent chapped skin, to remove sunburn, and cleanse the pores of the skin.

249.

Take of

Fresh lemon juice, a wineglassful.

Rain water, one pint.

Attar of roses, a few drops.

Mix, and put in a well-corked bottle. Wash the face and hands with this several times a day (letting it stay on for several minutes before drying with the towel). This preparation is highly recommended by the celebrated Dr. Wilson, of London, for clearing the complexion of "muddiness."

250.

Take of

Juice of cucumber, pressed from the fruit, a sufficient quantity.

Boil it over a quick fire, cool rapidly, and bottle. Apply a table-

spoonful, diluted with two tablespoonfuls of water, night and morning. This preparation is much employed in France for clearing the complexion.

In some parts of England the following wash is much employed for removing sunburn and whitening the skin:—

251.

Take of

Fresh horseradish root, one ounce.

Cold buttermilk, one pint.

Put aside for four hours.

Or,

252.

Take of

The juice of horseradish, one part.

Cider vinegar, two parts.

Mix. Has the same uses as the above receipt, and is also recommended for removing freckles.

253.

Take of

Benzoin, two ounces.

Pure alcohol, one pint.

Mix. A tablespoonful of this, added to a tumbler of water, turns it white, and makes a most agreeable wash for clearing the complexion.

254. Ointment for Sunburn.

Take of

Spermaceti,

Oil of almond, each two ounces.

Honey, one teaspoonful.

Attar of roses (or any scent), a few drops.

Melt the spermaceti in a pipkin, then add the oil of almonds, and, when they are thoroughly mixed,

stir in the honey. Take the pipkin off the fire, and stir constantly, until it is cool, adding the scent.

Apply at night, after washing the skin, and allow it to remain until morning. It relieves the irritated burning skin, and lessens the redness. Cold, fresh cream smeared over the affected parts sometimes does good.

As lunar caustic and tincture of iodine are medicines in common use, and stain the skin and body linen, the following directions for removing these stains will be found useful: —

255. To Remove Stains of Lunar Caustic (Nitrate of Silver) from the Skin.

Wash the parts discolored by handling a stick or solution of lunar caustic in a solution of iodide of potassium in water. The washing will turn the discolorations from brown to dead white. Then wash in a solution of spirits of hartshorn.

256. To Remove Stains of Lunar Caustic from Linen.

The best way to remove stains of nitrate of silver from linen is to moisten the stain with a few drops of a solution of one drachm of cyanide of potassium in a wineglassful of water, to which a few drops of tincture of iodine has been added immediately before using the solution. The linen should then be well rinsed in

clear water. This plan removes even the oldest stains of nitrate of silver, provided the operation be carried on in a moderately lighted room. The cyanide of potassium may be obtained of the druggist, but is a violent poison, which should be kept and handled with great care.

257. Another Way of Removing Nitrate of Silver Stains from the Fingers.

Moisten the part with tincture of iodine; immediately apply spirits of hartshorn, and wash off.

258. To Remove Iodine Stains from Linen.

Dissolve two drachms of the hyposulphite of soda in half a tumbler of water, and soak the stains in the solution, then wash in water.





CONCLUSION.

CHARITY TO THE POOR AND SICK.

In closing this review of the afflictions to which the human body is exposed, and this enumeration of the resources which science and experience have at command to alleviate them, were it not well to reflect how many there are, within reach of every one of us, who stand in great need of such alleviations, and who have no means to procure them? By the expenditure of but a little time, and a small outlay, it is in our power to soothe many an aching brain and fevered body. "The poor always ye have with you," said One whose words do not fail, and there is no benevolence more practical, more immediately a duty, than to aid the poor who are sick.

Poor and sick! How much misery in those three monosyllables, which the poet *might* have called 'The saddest words of tongue or pen.'

Hospitals and almshouses do not supply the need, and it is but an excuse for heartlessness and selfishness to say so. Very many cases are not suited for admission to them, and they never equal the requirements of a community. In no sense do they relieve the individual of the command which has been laid upon him, to "visit the sick in their affliction."

Nor is the spirit of that command complied with when we merely supply the actual wants of the invalid, furnish him food and fuel, clothing and medicines. The charity that stops here is cold indeed, and the thoughtfulness which extends no further, takes little note of the deeper needs of the human heart. Our civilization has created for us necessities none the less real because they are artificial. As a gifted woman once remarked, "Poverty does not consist so much in

not having enough to eat, as in not having the food one desires." Doubly true is this in sickness. The coarse fare which is the ordinary food of the poor is then loathed, and it is physiologically true that it often will not nourish if taken, and the monotony of diet actually starves the body. Delicacies, "tidbits," little surprises in diet, such as we have given numerous receipts for in the foregoing pages, are then not merely most grateful, but really necessary. It is, moreover, a curious fact, one constantly observed, and which we can interpret as a standing admonition to mutual kindly offices, that the palate of the sick is nearly always better pleased with a dish sent in by a neighbor than with the same prepared at home. The little peculiarities in its preparation which every housekeeper has, give it an agreeable diversity in flavor.

But the sick ask more at our hands than food and shelter. The long, weary days, the longer, more weary, sleepless nights: how grateful to the worn and disturbed senses at such times, is the fresh fragrance of a bouquet of flowers, the cool scent of an aromatic water, such as bay water, cologne, or diluted vinegar, the sight of a few pretty prints, or the soothing sound of a gentle hymn. In one sad case we remember, that of a fair young girl, a long time tossing in the low delirium of typhoid fever, nothing gave her quiet till two or three of her schoolmates stood round her bed and united their voices in a soft hymn, when she sank into a peaceful slumber.

In this connection, we would recommend for imitation an admirable society in Philadelphia, organized by a number of charitable ladies, the "Philadelphia Flower Mission," the chief purpose of which is to distribute bouquets and baskets of flowers, pot plants and fresh fruits, through hospitals and charitable institutions, and in the dwellings of the poor throughout the city. It gives away in this manner from eight to ten thousand bouquets annually, all of them contributed by the members and their friends, who have flower gardens and conservatories. Let such use as this be made of surplus wealth, and we shall hear no longer of "the war between labor and capital." Such charity is dictated by no monkish sentimentality, but is directed by the truest of physiological principles, and is inspired by the very spirit of Him who painted the lilies of the field with tones of beauty such as no earthly artist can approach.

Especially would we call the attention of the charitable to the condition of the children of the poor in our large cities. There are, in the first place, those waifs of humanity, the foundlings. About a fourth of all the children of the poor die in the first year of their life; but of those deserted little ones, hardly a fourth survive that year. The mortality of foundling hospitals, no matter how well cared for, is simply appalling; but a very small fraction of the infants admitted to them live to come out again. Hence an eminent physician of New York city condemns them altogether, and recommends in their stead that arrangements shall be made with small farmers, and others living in country places, to take and care for the foundlings. This plan, adopted with gratifying success in certain European cities, is not more expensive, and should be introduced with us.

Next to these the older children of poor parents claim our attention. Think of the child shut up the long, hot summer, in the foul alleys of the city, never seeing the green fields, its natural home, nor culling flowers, or chasing butterflies, its brightest of dreams. Shall we not give those little ones, at least once in a while, a breath of pure, fresh, country air, a brief escape from crowded tenement houses and dusty streets? With this object in view, charitable individuals in some of our cities have for several years subscribed to a fund to provide excursions for the children of the city poor. This is well; but it is not necessary to wait for such organizations. Any one can readily—too readily!—find a child suffering and pining for country air, and at a small expense arrange with a farmer's family to keep it a few weeks during the summer. Then give another its turn, and at no more cost than a week for ourselves at the seaside, health and happiness can be distributed for a whole summer, on half a dozen little lives.

Dr. TONER, of Washington, has also suggested the establishment of large camps, with abundance of shade and pure water near them, for the accommodation of poor families in the summer, a most benevolent suggestion, which, it is to be hoped, will not be forgotten.

We would add one more word to the recommendations which we have here written, and a word which, if the reader pass on unmindful of it, will frustrate his best attempts to help those who need his

help. It is this: *show* your sympathy as well as feel it. Show it in word and in look, as well as in acts; show it in your softened tones, in tender inquiry, in patient listening to complaints, in consideration for the feelings of the humblest, in a demeanor as respectful in dreariest garrets as in most luxurious sick chambers. Without this, your deeds of mercy will neither bless you who give, nor those who receive.

We add another and a final reflection. Sickness is to man a warning that this life is not his only one; that he is but a sojourner in the land, and must seek his true home beyond. Therefore, it is eminently proper at such times, when the condition of the invalid permits it, to recall to his mind the promises of religion and the loving kindness of Him who holds our destinies in His hand. It is not the time to excite religious fears or strong emotions, nor to discuss differences in religious opinions. It is not for us to pronounce judgment on our fellows, nor can we measure the good and evil of any man's life; but every Christian, whatever opinions he may individually prefer, can always draw from the inexhaustible fund of God's promises, words of consolation and comfort for the sick and the wretched, which will cheer their minds, lighten their sufferings, and fit them better for the passage to the world beyond.





APPENDIX.

THE FAMILY HEALTH RECORD.

THE OBJECT OF THE HEALTH RECORD.

By means of the following schedules for a "Family Health Record" any mother can, with very little labor, keep the health annals of each of her children. The jotting down in place of a word or two, or of an initial, every few months, will, in time, furnish orderly notes, extending from infancy over the whole life, always at hand for instant reference. The value to a family of such health archives can scarcely be over-estimated. No random, straggling memoranda, like those sometimes kept, compare in utility with these regularly noted facts, arranged upon a uniform plan.

Every mother can and should be the historian of her children's health, and put upon permanent record her solicitude for their welfare. No careful housekeeper is ignorant of the usefulness of exact expense accounts; few can fail to see the great importance of preserving exact health accounts, instead of trusting, as is usually done, such details to the memory, a guardian often at fault, and never fully competent. Who can recollect and give at once, and with accuracy, to a new physician, one, therefore, unacquainted with the family history and peculiarities, the prominent events in regard to the early life, the growth and the ailments of each member of the family, his or her susceptibilities to this or that disease,

to the effects of this or that food, medicine or mode of life? Yet such information throws that light upon the constitution of the invalid which is often the most needed, the most difficult to obtain, and the want of which often leads to the most lamentable errors of treatment. The register which we here give will enable any mother, at the trouble only of noting a word, a date, or a single letter, at long intervals of time, to treasure up, always ready for consultation, all the important facts relating to the temperament, predisposition, and ailments of her children.

With the aid of this Family Health Record, properly kept, many a connection, which would otherwise remain unsuspected, will be observed between sicknesses remote from each other, but united by a chain of cause and effect, a common nature, or a similar origin. Family peculiarities and hereditary tendencies will, by it, be brought to light, which would otherwise escape attention. Predispositions to certain ailments frequently lurk in individuals and in families, unseen by all but the old family physician, whose knowledge of them cannot always be made available; these records will make them apparent to every ordinary intelligence.

In order that the nature of each serious ailment may be correctly stated, the mother should question the attending physician at the close of the illness, and at once make her notes. The precise facts only are wanted; all theories and suppositions are useless.

We need not enlarge upon the importance of a Family Health Record to every individual, family and community; a moment's reflection will show what precious light would be thrown upon public as well as private hygiene if such a register, on a uniform plan, were kept for generations by every family of the land.

It will be observed that the following register is arranged under eight heads, and that it presents, therefore, eight separate tables, in blank, for filling up. They are all within the range of the mother's powers of observation. The first is devoted to *descent*, and gives the health and tendencies to disease of the immediate living relatives, and the age and cause of death of those deceased. Initials for filling up the columns of this table are furnished in the foot-note to it. On the blank page opposite, any additional particulars bearing on the subject may be recorded. The second table is for the purpose of record-

ing the *weight* at different ages. These comparative weights are of the greatest importance, and are not difficult to take. The average weight of a new-born child is seven pounds; the extremes are from four to eleven pounds. The third table affords the means of noting the *growth*, particulars in regard to school life, and the diseases which manifest themselves during the period of active growth. The notes in reference to vaccination called for by this table should not be overlooked. A new-born child is easily measured by stretching it upon a table, keeping its legs out straight, and drawing two lines, one touching the soles of the feet, the other the top of the head. Subsequent measurements are readily taken by having the child stand in stocking feet beside the case of the door, and resting a square on the top of the head. If a small four-sided post be prepared, two inches square and six feet and a half high, on its four faces may be inscribed the growth of four children of the same family, one face for each child. This, if kept, and carried from house to house, enables comparisons to be made at a glance. The fourth table is for the noting of *ailments*. Quite a number of the most common and the most important for recording are printed, and blanks left for others. The defects and diseases in the senses of sight and hearing are to be noted in the blanks provided for them by table fifth. The sixth and seventh tables are for facts in regard to *Accidents* and *Operations*, and *Hygienic Habits*. An obituary record ends the Register.

PRACTICAL DIRECTIONS FOR KEEPING THE FAMILY HEALTH RECORD.

Make the entries very brief; employ the initials as often as possible, in the place of writing out the words.

Observe that there is ample space for keeping the health records of *four* children, that of one being upon the left-hand page and those of the other three on the right-hand page facing it. The full form, given on the left-hand pages, for the first child, is not repeated on the right-hand pages for the second, third and fourth child, as it is unnecessary to do so, it being easy to put down in the blank space there given to each child all the details that need be noted, if care be taken to record them in the same order as that called for by the ruled form on the opposite page.

The Family Health Record.

DESCENT.		LIVING.		DEAD.	
		Health.*	Tendencies.†	Age	Causes of Death.
A. Ancestors.	I. Paternal.	{	{		
	II. Maternal.	{	{		
	B. Father.	.	.		
	C. Mother.	.	.		
	D. Brothers.	{	{		
		{	{		
		{	{		
	E. Sisters.	{	{		
		{	{		
		{	{		
F.	Uncles and Aunts.	Paternal.	{		
			{		
	Aunts.	Maternal.	{		
			{		

* Fill up this column by the use of the following initials: Very good (V.G.); good (G.); tolerably good (T.G.); delicate (D.); feeble (F.); confirmed invalid (I.).

† Fill up this column by the use of the following initials: Tendency to brain disease (B.); to nervous affections (N.); to coughs, colds, and chest affections (C.); to rheumatism (R.).

The Family Health Record.

ADDITIONAL PARTICULARS.

--	--

The Family Health Record.

WEIGHT.

Age.	Weight.	Age.	Weight.	Age	Weight.	Age.	Weight.
	lbs.		lbs.		lbs.		lbs.
At birth,		2 years,		12 years,		25 years,	
1 month,		3 years,		13 years,		30 years,	
2 months,		4 years,		14 years,		35 years,	
3 months,		5 years,		15 years,		40 years,	
4 months,		6 years,		16 years,		45 years,	
5 months,		7 years,		17 years,		50 years,	
6 months,		8 years,		18 years,		55 years,	
9 months,		9 years,		19 years,		60 years,	
12 months,		10 years,		20 years,		65 years,	
18 months.		11 years,		21 years,		70 years,	

AGES AT WHICH THE WEIGHT HAS DIMINISHED:

Causes of Diminished Weight :	{	Hygienic Causes :	{	1. Bodily fatigue :
			{	2. Mental fatigue :
			{	3. Rapid growth :
	{	Morbid Causes :	{	1. Bad habits :
				2. Indispositions :
				3. Sickness :

The Family Health Record.

OTHER CHILDREN.

2.

3.

4.

The Family Health Record.

GROWTH.

Age.	Height.		Age.	Height.		Age.	Height.	
	Ft.	In.		Ft.	In.		Ft.	In.
At birth,			7 years,			14 years,		
1 year,			8 years,			15 years,		
2 years,			9 years,			16 years,		
3 years,			10 years,			17 years,		
4 years,			11 years,			18 years,		
5 years,			12 years,			19 years,		
6 years,			13 years,			20 years,		

Irregularities: { A. Retarded growth:
B. Premature growth:
C. Growth by leaps:
D. Excessive growth:

SCHOOL LIFE.

	Primary School.	Grammar School.		High Sch'l or other.
		Lower Classes.	Upper Classes.	
Age when entering, . .				
Age when leaving, . .				
Interruption from Indisposition or Sickness, . .				

DISEASES IN GROWING.

	Emaciation.	Persistent Cough.	Hooping Cough.	Fits.	St. Vitus' Dance.	Croup.	Scarlet Fever.	Measles.	Chicken Pox.	Worms.	Rickets.
Age,											
Duration, . .											
Severity, . .											

When vaccinated:

Did it take?

Date of vaccination:

The Family Health Record.

OTHER CHILDREN.

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The Family Health Record.

AILMENTS.

DISEASE.	Date.	Season.	Age	Duration.	Consequences.
Constipation, . . .					
Dyspepsia,					
Diarrhœa,					
Colds in the head, .					
Colds in the chest, .					
Sore eyes,					
Running at the ears,					
Boils,					
Eruptions on the skin,					
Nose-bleed,					
Neuralgia,					
Rheumatism,					
Persistent cough, .					
Spitting of blood, .					
Night sweats, . . .					
Vomiting of blood, .					

The Family Health Record.

OTHER CHILDREN.

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4.

The Family Health Record.

SIGHT AND HEARING.

I. SIGHT.

A. Cross-eye:

B. Near sight.

{	1. Inherited.	{ Father :
		{ Mother :
		{ Brother or sister :
	2. Time of appearing :	

C. Far-sight. { 1. Inherited:
2. Time of appearing:

D. Diseases of the eyes:

II. HEARING.

A. Diseases of the ear:

B. Deafness. { 1. Of long standing :
2. Nervous :

The Family Health Record.

OTHER CHILDREN.

2.

3.

4.

The Family Health Record.

ACCIDENTS AND OPERATIONS.

A. Falls:

B. Blows and contusions:

C. Bruises and scalds:

D. Ruptures.	{	1. Age:
		2. Side:
		3. Causes:
		4. Trusses. { A. Date of application: B. Date of leaving off:

E. Foreign bodies.	{	1. In the stomach:
		2. In the eye:
		3. In the ear:
		4. In the throat:

F. Poisoning. . . .	{	1. Date:
		2. Substance:
		3. Consequences.

G. Injuries of the bones or joints.	{	1. Fractures:
		2. Dislocations:
		3. Sprains:

H. Surgical operations:

The Family Health Record.

OTHER CHILDREN.

2.

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4.

The Family Health Record.

HYGIENIC HABITS.

- | | | | | |
|--------------------|---|-------------------------------|---|----------------------------|
| I FOOD: | { | A. Food badly digested: | { | 1. Fat: |
| | | | | 2. Lean: |
| | | | | 3. Milk: |
| | | | | 4. Vegetables: |
| | | | | 5. Fruit: |
| | { | B. Peculiar tastes in eating. | | |
| | { | A. Common duration: | | |
| | | B. Hours of | { | rising: |
| | | | { | retiring: |
| II. SLEEP: | { | | | 1. Peaceful sleep: |
| | | | | 2. Continuous sleep: |
| | | | | 3. Interrupted sleep: |
| | | C. Condition: | { | 4. Dreams: |
| | | | | 5. Nightmare: |
| | | | | 6. Grinding of the teeth: |
| | | | | 7. Habit of talking aloud: |
| III. EXERCISE: | { | A. Activity or sluggishness: | | |
| | | B. Agility or address: | | |
| | | C. Endurance of fatigue: | | |
| | { | A. Date of beginning: | | |
| IV. GYMNASTICS: | | B. Total duration. | | |
| | | C. Principal exercises: | | |
| V. CLOTHING: | { | A. Warm and thick: | | |
| | | B. Light: | | |
| | { | A. Warm: | | |
| VI. BATHING: | | B. Cold: | | |
| | | C. Sea: | | |
| VII. KIND OF LIFE: | { | A. Active: | | |
| | | B. Sedentary: | | |

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[illegible]

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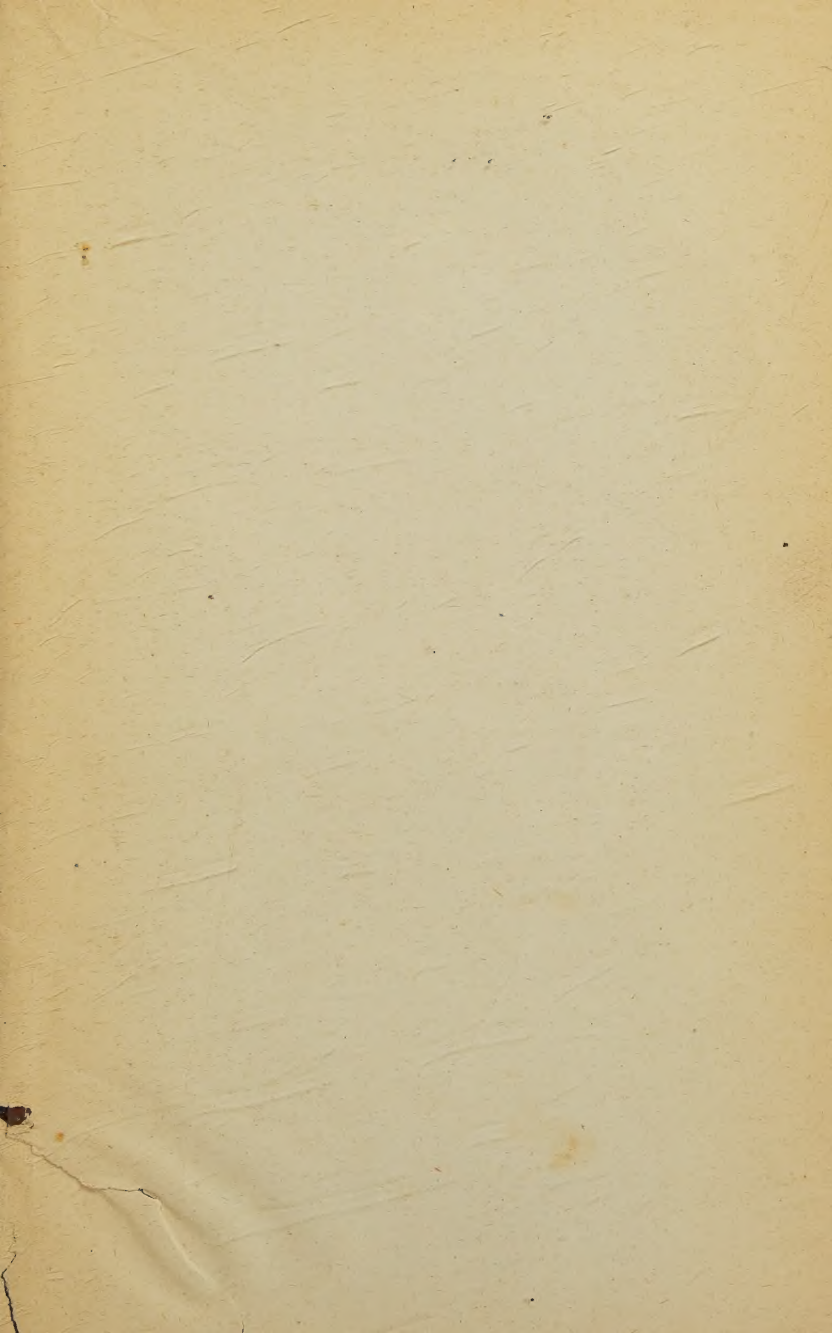
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